The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

VOL. 27. NO. 26. TULSA, OKLAHOMA, NOVEMBER 15, 1928

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Mid-Continent Situation is Stronger

Highest daily average estimated total production in 1927, week ended July 30, 2,587,105 bbls. Lowest in 1927, Jan. 22, 2,360,789 bbls.

Production Declining With No Flush Fields in Sight Until Next Year. Conditions Elsewhere Encouraging

By Andrew M. Rowley

Highest daily average estimated light oil production in 1927, week ended July 30, 2,102,385 bbls. Lowest in 1927, Jan. 1, 1,790,729 bbls.

Production of crude oil in the Mid-Continent area is still declining with all indications pointing to a continuance of this trend throughout the remainder of this year at least. At this time there is no flush field in this area from which any increase can be expected before next February at the earliest and practically all the pools are recording a normal, slight decrease in output each week. At the same time, refineries in the Mid-Continent area started out this month with a greater crude throughput to stills than during any previous month except last September. In other words, there has been no slackening in the demand for crude.

The increase in price of Pennsylvania crude announced last Friday shows refiners in that territory are anxious to obtain crude for their requirements. The situation in West Texas is believed to be under control and good progress is being made in California to prevent a big waste of gas in connection with development of the deeper zone at Santa Fe Springs. Conservation of natural gas there can be accomplished only through pinching in wells which, naturally, will hold down production to some extent.

There is very little "free" oil available in the Mid-Continent area, that is crude which the smaller refineries can purchase. Most of the production is in the hands of the larger companies who do not want to part with it.

The big drilling campaign in the Mission area in Oklahoma which will get under way this week will not make itself felt in the production column until the middle of next February and there is nothing else in sight in Oklahoma at this time.

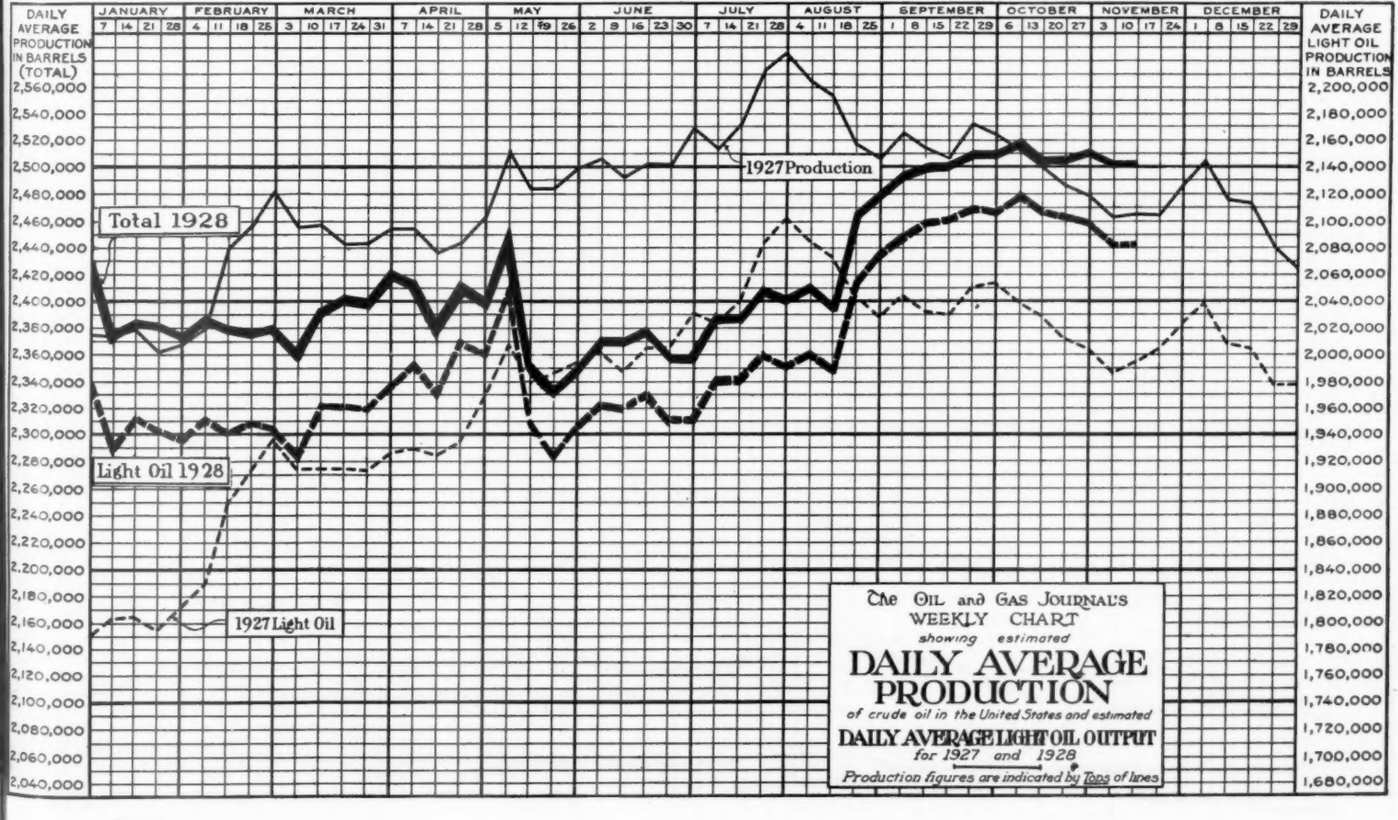
Operators, viewing the general situation as outlined above, cannot help but feel optimistic regarding the outlook and while certain interests seem reluctant to raise the price of crude, it is felt higher prices are not only warranted but justified and that an increase in the posted price of at least the better grades of crude will be announced in the very near future.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended November 10, and a comparison with the previous week follows:

	Nov. 10		Nov. 3	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	11,955	.....	11,865	.....
Burbank	25,830	.....	26,515	.....
Other Osage Fields	26,115	.....	26,480	.....
St. Louis-Pearson	129,045	.....	127,070	.....
Cushing and Shamrock	20,140	.....	20,110	.....
Bristow	20,585	.....	20,660	.....
Allen	23,415	.....	23,320	.....
Seminole	299,420	.....	302,520	.....
Northern Miscellaneous	109,140	.....	110,215	.....
Southern Fields	55,735	.....	56,785	.....
Total Oklahoma	721,380	.....	725,540	.....
West Texas—				
Hendricks	144,392	.....	145,021	.....
Yates	70,951	.....	69,952	.....
Remainder	114,904	.....	115,815	.....
Total West Texas	330,247	.....	330,788	.....
North Louisiana	33,030	6,385	32,045	6,140
Arkansas	28,630	54,550	28,555	54,725
North Central Texas	143,258	.....	143,172	.....
Texas Panhandle	65,100	.....	67,905	.....
East Central Texas	22,418	.....	21,834	.....
Kansas	96,690	.....	96,960	.....
Total Mid-Continent Area	1,440,753	60,935	1,446,799	60,865
Gulf Coast	.....	135,045	.....	136,285
Southwest Texas	.....	29,029	.....	28,788
Eastern	116,000	.....	116,000	.....
Rocky Mountain Area	83,842	.....	82,459	.....
California—				
Santa Fe Springs	50,000	.....	40,000	.....
Long Beach	188,000	.....	189,000	.....
Torrance	2,000	14,000	2,000	14,000
Huntington Beach	51,000	.....	51,500	.....
Dominguez	10,000	.....	10,250	.....
Inglewood	16,500	10,500	16,500	10,500
Ventura Avenue	52,000	.....	53,000	.....
Seal Beach	25,000	.....	25,000	.....
Remainder of State	53,000	168,250	53,000	168,250
Total California	447,500	192,750	440,250	192,750
Total United States	2,088,095	417,750	2,085,508	418,688
Grand Total	2,505,845		2,504,196	

Total Increase, 1,649 Bbls.; Light Oil Incrase, 2,587 Bbls.



Gasoline Prices Continue Decline

Naturals Also Weaker. Fuel Oil Prices Threatened as Lower Freight Rates for West Texas Go Into Effect

By W. T. Ziegenhain

Oklahoma refiners reduced their gasoline quotations another quarter cent as the week opened, this cut following the last one by about two weeks. This established 9¼ cents as the general market price for the 58-60 U. S. Motor grade. There were scattered sources where gasoline could be bought below this price. Some of it going at 8¾ cents but much of this material is either distress production from a small refiner without storage facilities or will not pass all of the usual market specifications. These latter sales are also occurring in such small numbers compared to the total spot business they should not be taken as an index of the general market price, but they do show the position of the market with respect to what trend may be expected in the immediate future. Natural gasoline took another step downward resting slightly below the refinery gasoline price level.

That natural prices will closely follow the refinery market over the balance of the year seems to be the opinion of most manufacturers. They are also satisfied prices will not reach anything like the low mark set last winter, regardless of increased production in the Seminole Pool. The amount of the material moving to the Gulf has increased to such a large amount that a feeling of security is present were the refinery requirements cut below last year's figure due to the higher natural prices. Yet, the refinery business continues to be a very important part of the total.

Kerosene Weakens

Kerosene continued to weaken and a wide range of prices were quoted with an equally wide range in the quality of the material. The low sulphur content, long time burning grades were favored in the trading and demanded the top prices. The high sulphur content kerosenes were offered in a few cases at prices even below the low of the general market. Distillates moved in larger quantities but the free offering of these kept their price level from advancing. Gas oil and fuel oil also failed to show any change in a slightly more active market. The increased business, however, is in special fuels, such as low cold test furnace gas oils, low cold test and low sulphur content heavy fuels and not in the general run of refinery production. The quantity of these special fuels too, is not sufficient to carry the entire market or even give a more optimistic outlook to the immediate future of that market. A curtailment in crude runs appears to be the only means of immediately eliminating the practice of adding to stocks.

Lurbicating oils also passed through a week of inactivity. Despite the material price reductions made over the past two weeks, price concessions are being offered in addition for the larger orders, making the final cost to the large consumer as low as 2 cents under the general market.

Wax Market

The Mid-Continent wax market has remained unchanged so far as the price is concerned but there is not the same optimism present regarding the future of the market as evidenced in the East. As a result the Oklahoma price has failed to advance with the eastern market over the last week, although it has been quick to respond to eastern price changes in the past. With a reduction of approximately 12½ cents in the freight rate on fuel oil from certain points in the West Texas refining area going into effect Oklahoma refiners are placed at a greater disadvantage to move their production than ever before. On November 12 the rate out of Big Spring, in West Texas,

(Continued on Page 166)

REFINED MARKET BAROMETER

Gasoline prices were again reduced in the Mid-Continent and this added to the dullness of the market in other sections. Any future revision of prices is expected to be downward. Natural gasoline prices also acted in that direction in the Mid-Continent, but the California market remained unchanged. Kerosene was more actively traded in the North Texas market as exporters moved more than a million gallons of the material, but the high rate of production promises to hold that market down. Fuel oils showed no change and still lower prices seemed possible throughout the Mid-Continent. Lubricating oils strengthened along the Atlantic Seaboard, but this could not be applied to the balance of the market. Along the Gulf Coast new evidence of their weak position was seen as the heavy demand for export failed to bring about an advance. Wax was also more actively traded along the Atlantic seaboard and prices were slightly higher, but this was not reflected in the Mid-Continent.

Mid-Continent—Gasoline prices declined and scattered orders bore prices from one-fourth to one-half cent below the general market, showing the weakness and the likelihood of further reductions in the general market. Kerosene, gas oil and fuel oil remained inactive but at last week's price level. Natural gasoline prices weakened as the demand fell short of the supply.

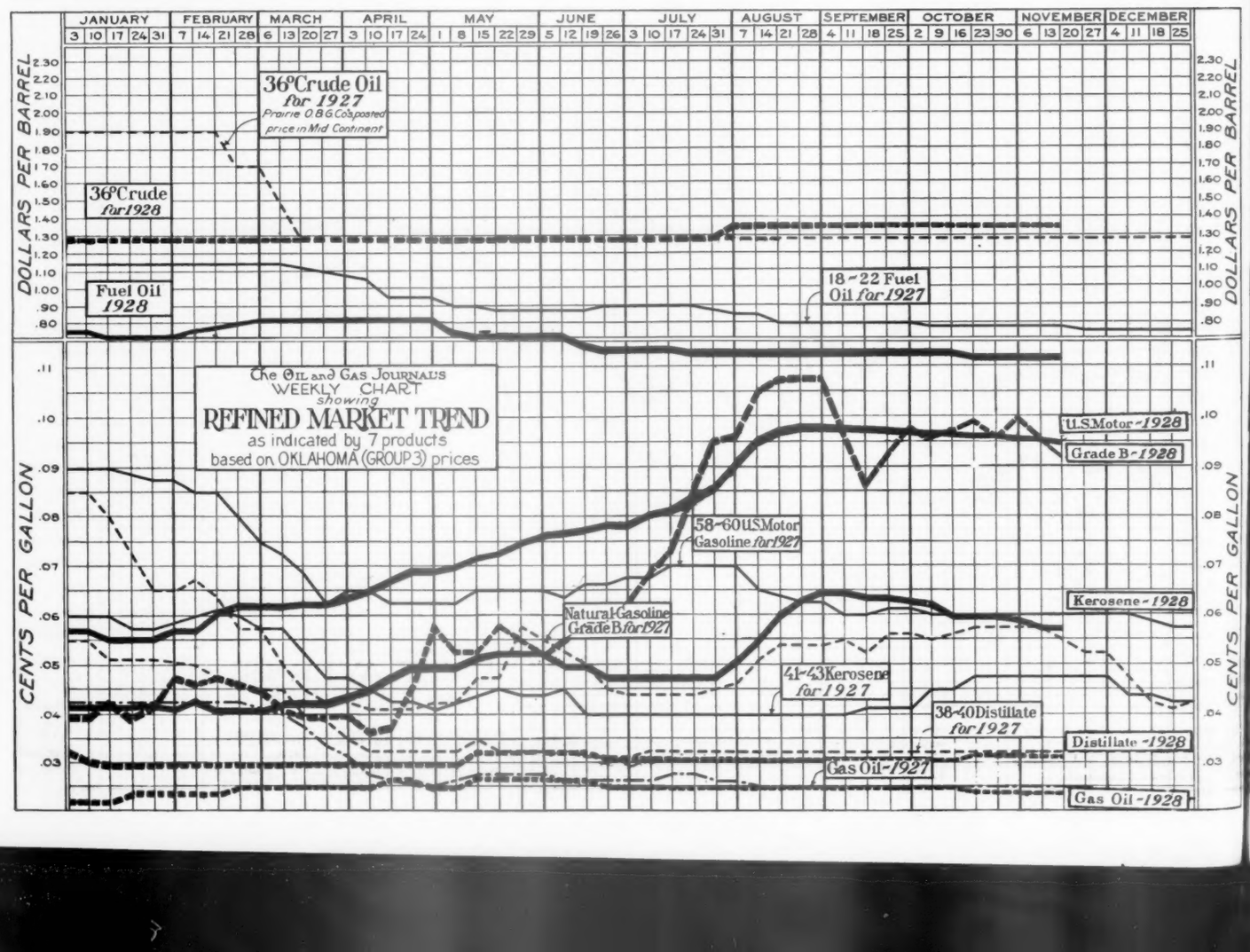
Atlantic Seaboard—Gasoline prices remained unchanged, but the market was admittedly very weak. The balance of the market remained unchanged with the exception of wax, which moved to higher ground.

California—Nothing of consequence resulted from the comparatively little activity in the week's trading.

Gulf Coast—Despite a favorable movement of lubricants for export, there was no thought of prices advancing. Fuel was traded in larger lots also and a further reduction in prices would not come as a surprise.

Chicago—The market was dull for the greater share of the week and gasoline prices were reduced. The balance of the products were also weak with the exception of distillates.

Pennsylvania—Price reductions were made in several grades of gasoline, and the balance of the market remained very inactive.



Oil's Use of Aircraft Growing Fast

Flying Gains Quick Favor in Industry Which Has Transportation Problems Difficult of Solution by Old Methods of Travel

By Thomas F. Smiley

Among the more striking developments of the oil industry in the last year or so has been the rapidly growing adoption of the airplane. Among all the industries now putting aircraft to regular commercial use petroleum is said to stand first, and many of its transportation problems are met so adequately by the airplane that there is every reason to believe it will contiue to head the list. It was only logical that flying should gain quick favor in the oil business, where opening of new production in inaccessible regions creates transportation problems difficult of solution by ordinary modes of travel; where getting to a certain spot quickly sometimes spells the difference between success and failure, and where properties in widely separated areas often must be supervised by one man. The initial experiments have been so convincing that not only is the industry's list of airplane owners increasing steadily, but the first buyers are getting more ships, in some instances whole fleets.

With new pools being developed from time to time in different parts of Texas, California and the Mid-Continent, big oil companies with their main offices in Tulsa, Houston, or some other city found the task of keeping in close contact with scattered operations increasingly difficult. The only solution apparently lay in establishing branch offices, transferring members of the main office force to conduct the business of the branch. In some cases the more important operations of a company underwent such changes in location that removal of the whole executive machinery to another city seemed imperative. In either case the contemplated action involved serious disturbance of administrative business and heavy expense. It involved too the moving of families with its breaking of social ties and serious cost.

Airplane Annihilates Distance

Then came the airplane with its practical solution of virtually the whole problem. It annihilated distance. If a company's production superintendent, chief engineer or other member of the organization was needed in a field several hundred miles away, an airship would take him there swiftly and safely. This was specially important during the period of a field's flush production.

Other uses of aircraft by oil men were obvious. It often happened in drilling operations that a string of tools would have to stand idle till some piece of a machine, broken accidentally, could be replaced. This sometimes involved a long drive to the nearest supply house. Sometimes it gave a rival string of tools a chance to reach the oil sand first. A similar situation would arise in pipe line transportation through a breakdown at a pumping station, when part of the system would have to shut down till some piece of a pump or engine could be replaced. In the case of such mishaps as these an airplane would make them of minor consequence by bringing the needed part so quickly that there need be no serious cessation of operation. And practical trial has proved that the airship would do all that had been expected of it, and more.

Among enthusiastic advocates of air travel is J. E. Elliott, president of the Elliott Core Drilling Co., Los Angeles, Calif., and vice president of the American Association of Petroleum Geologists. Mr. Elliott has a 6-passenger cabin-type plane and, accompanied by his pilot, F. W. (Pat) Farris, he made a tour last spring covering virtually every oil field west of the Mississippi River. The two men are doing much missionary work among oil men with a view of banishing the common feeling that aircraft offers an unsafe mode of transportation. Mr. Farris, who keeps a record of his flights, has taken more than 10,000 passengers on trips of varying length. Hundreds of oil men have had their first experience in air travel through Mr. Elliott's courtesy.

Mr. Elliott declares that oil companies with widely scattered interests necessitating frequent long trips by officials will find airplanes almost indispensable.

Amazing Results Achieved

Some of the results achieved with the airplane in the field of petroleum are as amazing in their advance over old methods as anything in the whole fascinating history of invention. Take, for example, one of the first steps in the development of an oil territory, that of sending out a reconnaissance crew to study the conformation of the area and to note the location and character of outcroppings. It is literally true that work of this kind which would consume weeks, perhaps months, if performed on land, requires only hours when done from the air.

Starting out from Los Angeles in response to a hurry-up call for casing protectors from an oil field in Wyoming.

An airplane with a specially made automatic camera attached to the under side of the cockpit floor flies over the region to be surveyed. The pilot adheres to a compass course as he crosses back and forth over the terrane under study and he maintains the same even altitude throughout the flight to preclude distortion of the picture taken. The camera clicks off serial exposures at fixed intervals through the operation of a small propeller. To make the pictures on a scale of 1 inch for each 1,000 feet the plane will be kept at an altitude of about 12,000 feet.

After the pilot has taken a straight course over one border of the district to be surveyed he turns and makes a return flight parallel with the first one, turns again and repeats this program till he has covered the entire region selected. Each time he is careful to get an overlay on his next preceding trip so that no part may be missed. This part of the work completed, the negatives are developed and prints taken. The prints then are assembled into a mosaic which presents a faithful picture or map of topographical features and outcroppings. The mosaic shows too the relation of the topographical features to each other in a way that has not been effected by any other method. The advantages of aerial reconnaissance of territory characterized by swamps or jungles are evident.

Unsuspected Features Revealed

If it is desired to study some part of the mosaic with more particularity than is possible with the mosaic itself, this can be done by obtaining two additional prints of that part and examining them with the aid of a device which embodies the principle of the old-fashioned stereoscope. This device affords a better perspective and shows the conformation of outcroppings more clearly. The aerial map reveals to the geologist features which cannot be seen from the ground at all. Faults have been found repeatedly the existence of which was not shown by ground study.

Pictures of two areas in Oklahoma mapped by means of airplane photography were shown at the recent International Petroleum Exposition in Tulsa as part of the exhibit of the Oklahoma State Geological Survey. Three aerial reconnaissance crews are working out of Midland, Tex., at the present time. It is believed probable that this modern method of mapping surface geology will supplant the old one altogether where large areas are involved.

Similarly aerial photography is taking the place of ground surveys for oil and gas pipe lines. One of the important aerial maps of this kind was that made a few months ago by the Edgar Tobin Aerial Surveys, Inc., of San Antonio, Tex., for the Texas Pipe Line Co.'s line from Sheffield, in eastern Pecos County, to San Marcos, in Hays County, a distance of 240 miles. The route covers the rough, hilly part of the Texas Pipe Line Co.'s line from the Yates Pool in Pecos County to Humble Station in Harris County, near Houston.

Breakfast in Tulsa, Dinner on Coast

Interesting as are aviation's contributions to the geological and pipe line departments of the oil industry, the swifter increase in the use of aircraft is seen, of course, in the more commercial phases of the business. Executives of oil companies in some cases are doing most of their long-distance traveling by air in privately owned planes. John H. Lapham of San Antonio, Tex., a director of The Texas Company, has been flying his own ship since last April. He has attended all directors' meetings in New York, making the trip by air.

This company began its use of airplanes by investing in a tri-motor ship, having in mind chiefly at the time the advertising value of the purchase. The ship is still in regular use and it has proved of such practical value that the company has added a 6-passenger cabin-type plane.

As an instance of how long and tiresome rides have been eliminated by these ships, Ernest J. Nicklos, division manager of the Oklahoma-Kansas division of The Texas Company, with several associates, left Tulsa at daybreak one morning and had dinner that night in Los Angeles, Calif. The same trip by rail ordinarily consumes three nights and two days.

With executive offices in Tulsa; refining and sales divisions in El Dorado, Kans., and its station division headquarters in Kansas City, Mo., the Skelly Oil Co. finds the airplane an immense time-saver. An executive desiring to go from the Tulsa office to El Dorado used to take a train out of Tulsa at 11:30 o'clock at night, arrive in Wichita, Kans., at 8:30 the next morning, eat breakfast in Wichita and then ride by bus from that city to El Dorado, arriving there at 10:45 o'clock a.m. Now he can eat breakfast in his home in Tulsa at the usual hour, board a company plane and land in El Dorado 1 hour and 20 minutes later. This is less time than it used to take him to get from Wichita to El Dorado after a night ride by train and a restaurant breakfast. The Skelly company recently bought its second plane.

Standard Official Flies to Oil Show

E. J. Sadler, vice president of the Standard Oil Co. of New Jersey, flew from New York to Tulsa in a company plane to visit this year's International Petroleum Exposition. After that he made a tour of inspection in the same plane, visiting Standard properties in Texas and California.

Through use of an airplane, Freeman W. Burford, vice president and general manager of the Crystal Oil Refining Corp., Shreveport, La., exercised constant oversight of the construction of an additional refinery in Pecos, Tex., without permitting his work in Shreveport to suffer. Since completion of the Pecos re-

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Crooked Hole Problem Being Studied

Research Organizations, Companies and Individual Engineers Are Giving Much Attention to Factors Involved

By H. B. Goodrich

On December 4, 1926, the writer hereof read a paper at the Tulsa Geological Society upon "Crooked Holes." Since that time there has been an evolution of thought on the subject. True to the sense of humor of America, which can see some fun in even the most serious matter, the fact that holes might be crooked has for years past caused a laugh. Another stage of indifference passed. A third stage has been reached and of late it appears that lack of verticality of drilled holes has occupied the serious attention and study of research organizations, companies and individual engineers. The real live importance of crookedness of wells is now coming to be recognized as a fundamental upon which economic oil production rests.

Therefore, it seems proper, simply to keep the record chronologically straight, to submit again the hitherto unpublished paper given nearly two years ago. It does not bring the discussion to date, but at that particular time it did call attention to what has come later. The paper as given follows, although for space economy the charts and diagrams are not copied herein:

Title: "A Compilation of All Published Matter Regarding Surveying of Deep Borings With Relation to General Subsurface Correlation and Practical Operation."

Introduction

These remarks are intended to draw further attention to a point of which no doubt all have thought; namely, whether there may still be some data recorded in the drilling of wells, which the geologist may accept as facts, and whether by basing conclusions on his unquestioning acceptance of such data he may sometime be led into error, thereby losing hard-earned professional prestige.

Are oil wells drilled vertically? Are geologists and other technologists warranted in assuming that lack of verticality (if there is such a condition) has little practical importance? Or, on the other hand, should we, in the Mid-Continent fields modify or adapt our present technique to cope with the general occurrence of crooked holes; and to what extent? For instance, is the subsurface geologist justified or not in accepting the measurement of depths as recorded by the driller, or should he become a more accurate tridimensional engineer?

Interesting Case Cited

This compilation for which no originality is claimed, was prompted by the contribution in the American Association of Petroleum Geologists' Bulletin, August, 1926, entitled, "An Interesting Example of Deep Bore Hole Survey. F. S. Hudson and N. L. Talliaferro there describe a survey made by Alexander Anderson, petroleum engineer and inventor of Fullerton, Calif., showing the vertical and azimuth deflection of a rotary drilled hole to a depth of 5,225 feet (total depth of this California well was 6,066 feet.) The horizontal direction of the hole wandered. At 5,295 feet the bottom was about 300 feet off from true vertical. The writer will refer later to this case. The facts as set out are startling to one who complacently assumes the verticality of deep holes.

References and Quotations

All writers on oil field practice stress the point that "absolute" verticality of wells in the initial stages of drilling is essential. In the initial stages it is comparatively easy to remedy a crooked hole. Victor Svimonoff in "Petroleum World" described a method by plumb bob and impression and wedging formerly in use in the Baku Field. By this, the law which prohibited the deviation of 1 inch in the first 200 feet, was lived up to. As he says: "Given a straight start, reasonable probabilities are that the well is going to be more vertical." But it is not only in the initial stages that a hole goes crooked.

Crookedness During Drilling

During the drilling of a well the symptoms of crooked holes are casing and fishing troubles, twistoffs, etc., and the methods of straightening bad crooks are known and practiced by the careful man. However, we cannot, as engineers, agree with some "practical oil men" that because a hole is drilled to a considerable depth it is by that fact proved to be vertical. It is submitted that in practically no deep drilling is the bottom of the hole vertically below the spudding in point, but that, depending upon the suddenness of vertical deflection (or successful application of remedies) the driller may have a fishing job, run out of hole, or complete a well. And a bad result cannot always be blamed upon carelessness of the driller; it may be due to causes beyond his control. To bring out the fact of lack of verticality, however explained, just a few illustrative examples are cited. The first is an oft-repeated tradition.

Examples Cited

In the early days of Spindletop, Tex., in 1901, the wells were very closely spaced. While the drilling was rotary it was often necessary to drill in through the hard cap rock at about 1,100 feet depth by cable. In that district of close competition "A" was bailing out in the sand while his neighbor "B" was pounding the cap rock. "A" found that he could not lift his bailer, so he called to "B": "Pull your tools out of the hole so I can get my bailer out." The story is that "B" did so and both wells were eventually finished without further interference.

There is an actual case of record for two rotary holes at Tonkawa about three years ago. They were 40 feet apart, but at about 1,600 feet the two came together and both are said to have been abandoned. Probably 3,200 feet of drilling was lost.

Another example is that of a well at Saratoga, Tex., in 1904, with which the writer was intimately acquainted. Originally this was a 500-bbl. well at 1,151 feet. Upon apparent exhaustion it was deepened to 1,240 feet. In this work 250 feet of 4-inch oil string with strainer had to be cut off, left in the hole and sidetracked. After the first 40 feet had been drilled by, bits were changed but on reentering, the sidetracked pipe had fallen over so that a third hole was drilled. The same thing happened repeatedly, the sidetracked pipe of hole No. 1 falling over from one side to the other on pulling out and going in again. Drilling was sometimes in hole No. 2 and sometimes in hole No. 3, the No. 2 hole always being a few feet the shallower. Finally pipe and strainer were set, fortunately in hole No. 3, and a producer was obtained.

We have heard of holes like the inverted capital letter Y, but this one was the inverted Greek letter PSI, like a three-prong fork pointing down, if you get what I mean—three holes under the same derrick, two deflections from the original one, which may not itself have been vertical.

Nor can the engineer accept the common saying that no matter how crooked the hole so long as you get the oil. The effect of deviation on the proper operation of wells may be seen in erroneous seating of casing and of line cut or otherwise worn pipe that becomes leaky. Undue water encroachment is often the result. Other symptoms are wear of tubing, rods, working barrels, etc., and consequent increased operating expense.

There are many circumstantial evidences of deflection. A striking instance often quoted is cited in Beeby Thompson's "Oil Field Exploration and Development," as follows: "A case at Burma. Consternation was caused by the pump tubing in a producing well being violently agitated. At the same time the drillers in a neighboring well were perturbed by its behavior. Investigation showed that the tools of the well drilling 45 feet away had penetrated the producing well at 1,400 feet." An almost identical thing occurred recently (in 1926) at Signal Hill, Calif.

A further case is cited in a note by E. L. Estabrook, in an A.A.P.G. Bulletin of 1925 entitled "An Alibi for Geologists." He says "Did you ever choose a location for a well that failed to strike oil?" Then he described a well in the Salt Creek Field, presumably a cable drilled hole, which at 1,375 to 1,422 feet in the first Wall Creek sand looked good for 10 bbls. The casing was run in, stopped at 1,361 feet, showing a crook in the hole. To go deeper for better production the well was filled back and started again. At 1,340 feet it showed oil, and at 1,400 feet it began to flow and made 320 bbls. His moral was, "Don't let the drillers bluff you. They could not drill straight down to the point you wanted." In a postscript he makes the significant suggestion that the original dry hole might have been deflected by a fault plane with indurated surface.

With such cases in mind, and you can duplicate them from your own experiences, one should not be surprised at records such as we have in the Hudson-Talliaferro paper and further that deflection and deviation do not often correct themselves, but are more likely to be continued and sometimes cumulative with depth.

Methods of Drilling

Let us consider comparatively the usage of various methods of drilling.

Diamond drilling was invented about 1865. Some producing oil wells have been drilled by it in Mexico and elsewhere and deep tests for oil have been drilled in Oklahoma by the diamond core drill. However, the method is here mainly confined to shallow test drilling. While it has unquestioned value to many of the

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Empire Plans Refinery Near Chicago

Pipe Line of 30,000 Bbls. Capacity Will Be Constructed Jointly With The Texas Corporation

The building of a new refinery in the Chicago district and the enlargement of a plant already operating were assured in the announcement of the past week that The Texas Corporation and Empire Oil & Gas Co. will build a 12-inch line connecting the Mid-Continent fields to the metropolis of the Middle West, which is the center of a large consuming area.

The newly formed company which will build and operate the 600-mile line will be known as the Texas Empire Pipe Line Co. Each of the two companies will own 50 per cent of the stock. The line will have an initial capacity of 30,000 bbls. daily. Construction work will probably start before the end of the year and it is expected that the line will be completed and placed in operation by July, 1929. The line will cost approximately $15,000,000.

Decision to build the pipe line on a 50-50 basis with The Texas Corporation involves a change in the previously announced plans of the Empire Oil & Gas Co. The company had plans completed calling for the construction of a refinery at a Mississippi River point in Iowa, with a pipe line to be built connecting the plant to the Empire's Mid-Continent pipe line system.

With the change in plans the refinery will be built near Chicago. A site has not yet been purchased, but it is expected that the plant will be located either in East Chicago or Hammond near the plants already operating in that section. The Empire refinery will have an initial capacity of 15,000 bbls. daily with complete skimming and cracking equipment. The refinery is being built to take care of the Empire's distribution in the middle western states. The company is a subsidiary of the Cities Service Co. and supplies the marketing subsidiary of that company with its petroleum products. The company has large distribution in the Chicago area and adjoining states. The Chicago refinery will take care of the company's distribution as far east as Ohio.

The Empire company at present operates three refineries in Oklahoma and one at Gainesville, Tex. So far as known the building of the Chicago refinery will not change the present status of the Oklahoma and Texas refineries.

Texas Enlarges Refinery

To absorb the additional crude oil that will be available, The Texas Company's refinery at Lockport, Ill., will be enlarged. The company, before the decision to join with the Empire, had intended to build a separate line connecting its Mid-Continent pipe line system to the refinery. The plant, which is located on the canal about 30 miles south of Chicago, has been operating for several years.

At present the crude oil is obtained from the Prairie Oil & Gas Co. through a pipe line connection of the Prairie Pipe Line Co. Its present crude oil runs to stills are about 7,000 bbls. daily. The refinery will be enlarged to take care of a minimum crude run of 15,000 bbls. daily.

The enlargement of the Lockport refinery is a part of an expansion program of The Texas Corporation in which new plants are being built with improvements at its refineries already operating. The Lockport refinery will take of its distribution in middle western states connecting to areas served by refineries located in Wyoming, Oklahoma, Colorado, Kentucky and eastern points.

The Empire's refinery when completed will be the sixth to operate in the Chicago territory. In addition to The Texas Company refinery at Lockport, the Standard Oil Co. of Indiana operates a 60,000-bbl. refinery at Whiting, Ind.; Shell Petroleum Corp. (Roxana) a 30,000-bbl. plant at East Chicago, Ind.; Sinclair Refining Co. a 30,000-bbl plant at East Chicago, and the Bartles Maguire Oil Co. a 3,000-bbl. plant at East Chicago.

Review of Oil Developments Abroad

West India Co. to Erect Refinery in Venezuela. Russian Exports Increased 33 Per Cent. Argentina May Cancel All Concessions

By Special Correspondent

Official announcement has just been made by the Venezuelan Ministry of Fomento that the West India Oil Co. has been granted a concession to build a petroleum refinery at Punta Adaro, within the municipalities of Los Teques and Punta Cardon, District of Falcon, in the state of the same name. This location is toward the south of the west coast of the Paraguayan Peninsula, on the Gulf of Venezuela. Under the terms of the concession, work on the refinery must begin within six months from the date of granting of title to the company, October 16, 1928.

No announcement has been made as to the size of the projected refinery nor as to the extent of operations to be undertaken there, but it is understood the capacity of the plant is to be 2,000 bbls. per day and that the company will refine oil from the Maracaibo Basin and will place at least the gasoline thus obtained on the Venezuelan market.

In Venezuela the Creole Petroleum Corp. (Standard Oil of New Jersey), is expecting delivery of three new shallow-draft lake tankers of 22,000 bbls. capacity each, about the first of the year. They will be used to take the crude from the Creole holdings in the Lake fields (which are now being worked by the Gulf), to the West India Oil Co.'s refinery and terminal on the Paraguayan Peninsula.

The only new pipe line of importance now projected is a 10-inch line of some 90 kilometers length from the Dutch Shell's field at Tara, in the District of Colon (west of the southern end of Lake Maracaibo), to a terminal at the mouth of the Catabumba River. Work on the line was to begin this month, and is not expected to be completed for at least a year. Construction will be difficult on account of swamps and thickly overgrown land that must be traversed.

Shut-in Production

Shut-in production, by fields, in Venezuela has been estimated as follows:

	Bbls. daily
Colon (Tara Field)	8,000
Mene Grande Field	25,000
Concepcion and La Paz Fields	6,000
Ambrosio Field	30,000

It was planned to reopen the Ambrosio Field by October 18. Opinions varied as to the effect this will have on the total production in the Maracaibo Basin. Since both companies concerned, the Gulf and the Lago, expected to store the oil thus obtained it was believed likely they would curtail production at Lagunillas and intervening fields wherever possible, so that there would be no net change in production. The Gulf officials believe that their company and the Lago will each obtain about 15,000 bbls. a day from the Ambrosio wells, while the Lago believes that this company will get about 15,000 bbls. to the Gulf's 10,000.

The general consensus is that there will be little change from the present rate of production and exportation for the next several months. One prominent authority declares that he believes production at the end of the year will amount to about 385,000 bbls. a day, of which 185,000 bbls. a day will be Dutch-Shell.

An estimate of oil in storage is as follows:

	Bbls.
Lago Petroleum Corp., Lagunillas-La Rosa Fields (Sept. 26, 1928)	1,024,000
Venezuela Gulf Oil Co., Lagunillas-La Rosa Fields (Sept. 26, 1928)	2,643,758
Venezuela Oil Concessions (Shell), Lagunillas-La Rosa Fields (Sept. 26, 1928)	225,701
Caribbean Petroleum Corp. (Shell), Mene Grande Field	162,140
Caribbean Petroleum Corp., San Lorenzo Terminal	556,979
V. O. C., Punta Piedras Field	5,871
V. O. C., La Paz Field	25,105
V. O. C., Concepcion Field	4,669
British Controlled Oilfields, El Mene Fields	14,886
British Controlled Oilfields, Alta Gracia Terminal	1,401
Colon Development Co. (Shell), Colon (Tara) Fields	52,492
Total oil in storage	4,717,002

German Demand for Asphalt

In connection with its capital increase from 80,000,000 to 100,000,000 marks, Rhenania-Ossag Mineraloelwerke Aktiengesellschaft, Duesseldorf, is erecting an 11,000,000-mark asphalt and oil factory at Harburg to increase local production against growing demand for asphalt for street and road building there.

Rhenania-Ossag is also laying down a 1,750,000-mark tank storage plant in Karlsruhe and a 1,500,000-mark tank in Torgau.

Furthermore, a 5,000,000-mark administration building is under construction in Hamburg, while another is proposed for Berlin.

Japanese in Dutch East Indies

That Japanese oil interests are attempting to secure petroleum production in the Dutch East Indies is clearly seen in the announcement that with reference to the written question made by Mr. Kies, member of the Volksraad, Netherland East Indies (People's Council), the whole contents of which question were telegraphed to Den Haag by Aneta, the following reply was received by telegram from Aneta-Den Haag.

"At the annual meeting of the Oost-Borneo Co., it is true that the chairman stated that negotiations were being made with a Japanese company with regard to taking over of the oil concession with exception of the part which has been given off to the Koninklijke (Royal Dutch)."

India's Output Declines

Indian petroleum statistics prove that it is becoming more and more difficult to maintain the output of India (including Burmah) at the high levels it reached in 1919 and 1921, when peak productions of well over 305,500,000 gallons were reached. During the year under review, the total production amounted to little over 281,000,000 gallons against less than 280,500,000 gallons in 1926, and little over 239,000,000 gallons in 1925. Although, therefore, this year there has not been an actual decrease, this can only be regarded as an arrest in the decline that has set in, and which, with possible interruptions, is likely to continue slowly and steadily during the present generation unless a new field of importance is discovered.

There was a marked rise in the imports of kerosene due to small increases in supplies from the United States, the Straits Settlements (including Labuan), and Borneo, reinforced by 12,500,000

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Unit Operation and Proration Differ

Engineer Declares Latter Should Not Be Depended Upon as a Permanent Solution of Overproduction Problem

By Earl Oliver

Improved methods of finding and extracting oil and gas threaten to promote overproduction so long as large untapped reserves at home or abroad remain to be discovered. Competitive drainage tends to force extraction irrespective of market conditions. In this America is the worst offender. As a result the important problems before the American petroleum industry have been and are: stabilizing output and stabilizing profits.

Many individuals have given thought to these problems during the past four years. Three major organized studies have been made:

First. By the Federal Oil Board.

Second. By the American Petroleum Institute Gas Committee.

Third. By the Advisory Committee of Nine.

Every one of these studies resulted in an unanimous conclusion that the solution is some form of unit operation. There was no dissenting voice. On the other hand not one of these major studies attempted to supply, nor has any individual yet supplied satisfactory mechanics for bringing about unit operation.

In the absence of a ready means of developing unit operation the American petroleum industry took the easier road in solving its overproduction problems and has adopted widespread proration rather than unit operation. Some benefits have accrued. Many in the industry have come to accept proration as a solution and consequently unit operation has made little or no progress during the past year.

Unit Operation and Proration

It is respectfully submitted that unit operation and proration are fundamentally different, and that the latter should not be depended upon as a permanent solution. The first is an engineering efficiency method that permits use of nature's stored energy to promote more complete and less costly extraction. It will reduce ultimate costs and increase ultimate acre yields, thus permitting greater profit to the operator without increasing prices to the consumer. It will build up proven reserves, which in itself is a stabilizer. It is a permanent remedy. The second has little relation to efficient extraction. It is designed primarily to control output to influence price and, unregulated, is permissible only as a temporary expedient.

Unit operation, if and when established, requires no policeman to protect the public interest. Self interest impels the owner to avoid waste when competitive drainage is eliminated. Oil from competing pools protects consumers against unfair prices. Under proration police power is needed both to supervise innumerable details of development and to regulate price.

In all respects the first method is more efficient without policemen than the second can hope to be with them. The first, we are advised, does not violate existing anti-trust laws. The second no doubt leads toward such violation. The first enables the industry to control itself. The second inevitably leads to government control. Any permanent machinery should be self controlled. Government and industry must go hand in hand, but the maximum control consistent with protection of the public welfare should rest with those who own the properties.

Distinctions Explained

If, notwithstanding a general system of unit operation, overproduction becomes so great as to necessitate proration between pools, (which would be rendered less probable under widespread unit operation) such proration would require co-operation with governmental agencies to protect the consumer against abuse of this control. But such proration between pools would be very simple indeed as compared with present proration between adjacent properties and would be necessary only under unusual overproduction conditions.

It is highly important that distinctions between unit operation and proration be made clear to the industry; that the industry be caused to see the direction into which it is drifting; that some satisfactory method of developing unit operation be evolved, and that an organized effort be made to establish it as a general practice. The purpose of this summary is to suggest methods of developing it.

Any program must stand three tests:

First. Would it benefit all essential factors in the oil industry?

Second. Would it benefit the consuming public?

Third. Are the mechanics adapted to the American conception of property rights and political practices?

If it stands all three tests, then a process of education will put the progress across. If it violates any one of the three tests, then forcing its adoption would merely pile up additional trouble for the industry. Proration violates the third point.

Two methods have been advocated for bringing about unit operation—by legislation; by education. Some one has said, "There is nothing on earth more powerful than an idea when its hour has come." We decidedly favor organized education.

With respect to legislation it has been argued to good effect that neither permissive nor coercive legislation is needed; that present laws do not prohibit unit operation; that judicial interpretation has given them a definite meaning; that the courts by interpretation have molded them to fit economic requirements and that years would be required to adjust new ones. As respects coercive legislation, it has been argued that well organized public opinion, economic law and a judicious application of the existing laws of correlative rights would adequately control obstreperous minorities; and that coercive legislation would not permit that flexibility of action for experimentation so necessary for developing a new process or a new practice.

To sum up the foregoing it is, therefore, suggested that an organized effort should be made to establish a more general practice of unit operation as contrasted with proration. It is also recommended that the practice of unit operation be promoted by organized effort under present laws rather than by the passage of new laws.

Bringing Field Men into Closer Touch

Plan Adopted by Rio Bravo Oil Co. at Suggestion of John R. Suman Found to Be Productive of Excellent Results

By Neil Williams

HOUSTON, Tex., Nov. 12.—Bringing the field men into closer touch with the office forces and executives, establishment of a bond of co-operation among all employes and providing a forum for the discussion of field and office problems and production practices have been some of the outcomes of a program carried out by the Rio Bravo Oil Co. of this city.

Although many companies have evolved numerous schemes in an effort to develop the field men along educational, efficiency and safety lines, Rio Bravo Oil Co. has attained these ends without seemingly conducting a campaign for these purposes. As a consequence of the company's unique plan, the field men and other employes of the company have entered enthusiastically into the program without being made to feel that the company executives were trying to force something onto them.

This plan, in general, has been the policy of the company to bring all its field superintendents and "key" men into the Houston offices at regular periods for conferences, to send these men to all oil expositions, conventions and production technical meetings, and to have these field superintendents and foremen exchange visits.

This scheme, which was inaugurated in the autumn of 1925 when John R. Suman, now a director of the Humble Oil & Refining Co., was vice president and general manager of Rio Bravo Oil Co., has been continued and elaborated on under James Hutcheson, successor of Mr. Suman.

Conference of Key Men

The office conferences were started on a quarterly basis, although they now are being held only semiannually, the other two conferences being replaced by having the men attend the expositions and such meetings and by having them exchange visits around the various districts.

At these two semiannual office conferences, the "key" men, or superintendents, of each of the districts in which the company operates, including Spindletop, Pierce Junction, Saratoga, Boggy Creek, Wortham, Luling and Electra, are brought to Houston, where they spend three days as guests of the company. In addition to taking part in discussions on geology, production methods and the like, and making trips to supply houses to see new equipment, the guests are given banquets and other recreational treats and every other effort is made to prevent these meetings from being dry or cold business propositions.

So great has been the interest of these field men in these Houston meetings that nearly all of them have reached the point where they are volunteering to write papers and make talks on the various field problems instead of having this done by the executives or outsiders. In the past, the plan has been for the heads of the departments to prepare discussions on some phases of their work, namely geology, paleontology, treating, air lift, pumping or numerous other production problems and practices, or on safety, accounting or other such subjects. These discussions have been more or less of an elementary nature, but with the field men taking a more active part some specific problems of the respective districts will be taken up.

Meeting of Warehousemen

These semiannual meetings, together with an annual meeting of all warehousemen brought to Houston for two days preceding one of the field men's meetings, in addition to proving of educational and recreational benefit have been worked into the company's program of standardizing equipment and reduction of warehouse stocks to a minimum.

Just how this is operated is somewhat unique, but is based on the principle that the men in the field who actually use the equipment should be judges of what equipment is used. Between each meeting various equipment is put on trial in each of the districts and when field men gather in Houston they make reports on the work of the equipment assigned to them and recommendations to company officials as to whether that equipment deserves to be adopted as standard and possibly replace another style of equipment previously used or being used on other operations.

The company officials point out that they are not doing this in an attempt to standardize on any particular make of equipment, but rather on specifications or practices most adaptable to the company's needs.

At the meeting of the warehousemen, complete reports are made by each on every piece of equipment in stock, whether this equipment is being used, and, if not, whether it ever will be needed. To supplement this, the company has a committee on obsolete equipment which passes on the reports from the various warehousemen determining what is to be done with the equipment on hand in the respective warehouses, whether it is to be held, sold, junked or transferred to another district.

As the company usually accepts the recommendations of the field men, the warehousemen and the committee on obsolete equipment, it can be seen that the employes of the Rio Bravo Oil Co. play more than the ordinary part in the operation of their company. This plan has proved of material benefit not only to the company, but also to the employes by increasing their interest in their work.

Value of System

In sending all its "key" field and office men and executives to expositions and conventions, the company works in relays so as not to have too many of its employes off duty at any one time. In the case of the recent Tulsa exposition each relay group remained at Tulsa three days. American Petroleum Institute meetings also are on the list for the field and office men to attend.

The good from these expositions and conventions comes in giving the men first hand contact with the new equipment coming out and with the technical or semi-technical and general discussions. Each man is required to make up a report on what he sees or hears for presentation at the following semi-annual conference at Houston.

What has proved of inestimable benefit to the field men has been the policy of the company in having each superintendent or foreman spend at least two days each year in each of the company's other districts beside his own. By this each man learns first hand what is being done in each of the other districts, what methods are being used and what problems are being faced and at the same time he becomes closer acquainted with other members of the company's family.

Also in case of possible transfers, it will not be like going into an entirely strange field but the man transferred already will have been acquainted to some extent with his new field.

Following visits to these various other fields, each man is required to make up a complete report for the next general conference. This report consists of friendly criticisms on what is being done in other fields and suggesting possible ways for improvement. Although ordinarily this might cause a little embarrassment, all have given and taken the criticisms in the best spirit with an idea of helping each other and the company.

Safety Stressed

Safety is stressed by the Rio Bravo Oil Co. and the co-operation which has been developed among the field men and the office force as a result of the company's conferences and regular visits is given much credit for the very material reduction in accidents since the organized safety campaign has been in progress.

In addition to the fact that M. C. McDowell, division superintendent for North and West Texas and a safety expert, attends the company conferences and instructs the men in safety methods and hazard prevention, a monthly detailed report of accidents by districts is sent to each field for posting. As the report shows the rating of each field month by month, a form of contest has been started in which each field superintendent has taken special interest in attempting to reduce the number of accidents among his men. As a reward for the superintendents whose fields have the fewest accidents or rather the greatest percentage of decrease, the superintendents of the four fields showing the poorest record entertain the superintendents of the other fields at a banquet each year.

In figuring the report, each field is listed showing the number of men in each and the aggregate number of working hours. A graph showing the record by months for the current year by fields is a part of the report and indicates what has been accomplished by each throughout the year.

Another innovation by the Rio Bravo Oil Co. which has caused considerable interest among the employes and which has tended to increase their efficiency has been what is known as the poster campaign. In this a large picture portrayal poster with some motto inscription is sent to each field to be posted on the bulletin boards. In order that the poster might be given its due attention by each employe in the field, each superintendent is required to make a report to the Houston office of the interest manifested by his men in the poster. The report is based on the comment he hears and how closely the poster is observed. It is up to each superintendent to see that his men read and observe the poster in order that his report might be favorable.

The plan of the Rio Bravo Oil Co. in holding its conferences and sending its men to conventions and expositions has proved so successful that Mr. Suman, who originated the plant with the company, has put a similar plan into practice in one division of the Humble Oil & Refining Co. since he has gone with that company and is getting good results there.

CONSERVATION ASSOCIATION BEING ORGANIZED BY SANTA FE OPERATORS

LOS ANGELES, Calif., Nov. 12.—The gas conservation program, which contemplates the utilization of excess natural gas for repressuring work and storage in the Meyer zone at Santa Fe Springs, received additional impetus last Friday, when steps were taken looking to the organization and incorporation of the Santa Fe Springs Gas Conservation Association. This plan for an association was recommended by the Committee of Fifteen, of which Herbert R. Macmillan is chairman, and which already had submitted a report looking to conservation of gas in the Santa Fe district.

The action with reference to organization of a permanent association is in pursuance of the following motion adopted by the Committee of Fifteen at its meeting last Friday:

"Your committee, appointed for the purpose of suggesting a plan to conserve gas production in the Santa Fe Springs district, recommends that the operators of said district form an association entitled 'Santa Fe Springs Gas Conservation Association,' substantially in accordance with the plan herewith submitted."

The plan submitted by the committee for the organization of an association states that "it is the desire of operators of wells for the production of oil and gas from the Meyer zone, Santa Fe Springs oil district, Los Angeles County, California, to effectuate the injection and storing, in said Meyer oil zone, of surplus gas produced from other zones in the same district and other districts, to the end that such gas may later be withdrawn and applied to beneficial use; that a greater and more economical and more orderly recovery of the oil and gasoline content of said Meyer zone may be had and further to effectuate a fair apportionment among the parties entitled thereto of the oil, gas and gasoline which may be obtained and recovered from said Meyer zone."

Operators to Meet November 20

Operators of the Santa Fe district met on the same day and adopted a motion that the report of the Committee of Fifteen previously submitted, together with the repressuring plan, be mailed to all operators in the district and that another meeting of operators be held on November 20 in Los Angeles for the purpose of ratifying the work of the committee.

In the letter mailed to operators notifying them of the meeting on November 30 and enclosing a copy of the report of the Committee of Fifteen it is pointed out that "it is essential that definite action be taken without undue delay."

The report of the Committee of Fifteen, which was told in substance in The Oil and Gas Journal last week, follows:

"Your committee, appointed at a meeting of the Santa Fe Springs operators, held on October 4, 1928, to investigate and prepare a plan of action looking towards gas conservation in the Santa Fe Springs district, submits the following report:

"Your committee members have pursued the question in hand diligently since the meeting of October 4. At the meeting of November 2, 1928, the following resolution, drawn up by a special Subcommittee of Three, was approved."

Special Committee's Recommendation

The resolution recommended by the special Subcommittee of Three and approved by the Committee of Fifteen follows:

"Whereas, the governor of the State of California, through the governor's Gas Conservation Committee, has called upon the operators in the Santa Fe Springs Field to prevent as far as possible creating and maintaining a surplus of natural gas in excess of that which can be put to beneficial use after being separated from the oil which has been produced by said gas, and

"Whereas, experience in the production of oil has demonstrated that a larger ultimate production of oil can be secured,

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Early Day Overproduction Problems

Basically the Petroleum Industry Differs Little. Former Efforts to Combat Difficulty. Effect of New Areas

By Ernest R. Lilley, Sc. D.
Associate Professor of Geology at New York University

To the casual observer there is little that is comparable between the oil business of today and the industry in the days when Pennsylvania dominated the world. The Seminole district has produced nearly as much oil in two years as the whole Bradford district did in 50. The drill reaches depths unthought of 40 years ago. The simplest skimming plant of today would put to shame the most complete refinery of the days when Oil City was the country's refining center. The network of pipe lines, that connects every major producing area with the refining centers of this country today, makes it difficult to understand the transportation problems of the days when crude oil shipments depended upon the supply of wooden barrels. The oil industry of 1928 is one of the leading examples of "big business."

Yet basically the industry differs little from the industry of the earlier days. Its problems may appear to be more difficult because of the greater size of the industry, but those of the past were just as serious to the oil men of the past generation. No one will deny that crude oil stocks of approximately 500,000,000 bbls. are a staggering load for the industry to carry. However, at the present rate of consumption this is equal to only a little more than seven months' supply. Not once during the period from 1881 to 1887 did the stocks of crude in Pennsylvania fall below the consumption for a whole year. Prices are low today. Pennsylvania crude sold for as little as 10 cents a barrel in 1861 and 1862. It averaged less than $1 a barrel throughout the whole of the period when it was in its prime. During 1888 and 1889 more than 20,000,000 bbls. of Lima-Indiana crude were sold for an average price of 15 cents a barrel. The same story of overproduction, storage burdens, transportation problems, and low prices can be told of the development of almost every important producing area from Pennsylvania to the Pacific Coast. Dates and details differ but the basic factors remain the same.

Early Curtailment

The industry points with pride to its record of the past year in forwarding measures to promote co-operation, stabilization and conservation. It has a right to. However, shutdown movements, proration agreements and other forms of co-operative efforts are not new. The first well-organized action of this type was taken in 1872. Similar action has been taken from time to time since then in all of our larger fields. In no case has the movement been a complete success. In a number it has failed utterly. In others it has given temporary relief. In many this temporary relief has been followed by conditions far worse than those existing when the movement began. Almost invariably the co-operative efforts have ceased before the industry was on its feet and the disease of overproduction has returned in a more malignant form to lay the patient low again. Today the oil industry is encouraged by the successes of co-operation in the past year. However, much remains before permanent recovery can be announced. In the taking of steps to guarantee that recovery it may help to survey briefly the successes and failures of earlier similar, though not identical, attempts.

The first period of overproduction came within two years of the drilling of the famous Drake discovery well, near Titusville in Pennsylvania in August, 1859. The company owning the discovery well had been organized by a group of citizens in New Haven with the view of collecting oil from springs. The idea of drilling was suggested by a chance remark of one of the stockholders. The site selected for the test was near several small but active seepages. Showings were encountered within a few feet of the surface and urged the drillers on. When the drill was shut down for the night on August 28, it had attained a depth of 69½ feet. The next morning it was found to be full of oil. A pump was installed the following day and approximately 25 bbls. of oil secured. This was sold readily by its discoverer for 50 cents a gallon, that is, $21 a barrel.

First Oil Boom

Excitement knew no bounds. The first oil boom was on. Lease buyers appeared in throngs on the streets of Titusville. Farms were sold outright at unheard of prices. Only the distance from transportation facilities and ignorance of the manner of proceeding in this new business prevented an immediate drilling stampede. Active development may be said to have begun with the opening of the following year. However, once started, completions followed one another in rapid succession, the production for 1860 passing the 500,000-bbl. mark. Prices broke to $3.75 a barrel by December. Wells were shallow and were cheaply and rapidly drilled. Unrestrained drilling continued throughout the first half of 1861 despite the utter inadequacy of removal facilities.

The first flowing well or "fountain" burst upon this already demoralized market in June with a yield of 300 bbls. daily. Visions of immediate wealth drew hundreds and even thousands to the scene. Stock companies were organized to carry on the search for those who could not prospect themselves. There were no rules of procedure and no legal authority to regulate development. It was a case of each man for himself, with no favors asked or given. Gushers followed one after the other in rapid succession. Pipe lines, tank cars and barges were unknown. Barrels were the sole means of transportation that appeared on the scene. The supply failed utterly, thousands of barrels of crude being permitted to flow into adjacent streams. Prices crumbled before the end of the summer, a nominal price of 10 cents a barrel being quoted through the fall and winter of 1861 and 1862.

Building of Refineries

Low prices did not seem to have held back the drill, most of the operators feeling that outlets would soon become available. They argued that the world would take all of the coal oil that could be shipped out and called loudly for the building of refineries to convert the crude petroleum into that essential product. Refineries, if they can be designated by such a name, sprang up over night. The Oil City Register of June 1, 1862, reports the existence of 25. A complete refinery consisted of a still and a condenser. Luckily for the good name of the new industry, these plants were being supplied with crude that is known the world over for the excellence of its products and its freedom from disagreeable and objectionable ingredients.

Despite the fact that production rose to 13,000 bbls. a day by the fall of 1862, refining capacity was able to keep up with it. The world appeared able to absorb all the burning oils that the refineries could ship. Crude oil passed the $2-a-barrel point in November and reached $3 by the middle of the following year. The first great period of overproduction had passed into history, ended by the construction of the link needed to connect the producing well with market—the refinery. No credit for its end belongs to the producer. His drill had not stopped once. Production was greater as the period ended than when it began.

Increasing prices brought, despite the drain on man power caused by the Civil War, a wildcatting campaign that extended the full length of Oil Creek and its tributaries and for a distance of 80 miles along the Allegheny River on either side of the mouth of Oil Creek. The results of this campaign were negligible, production declining in 1863, and again in 1864. Prices rose steadily, reaching a peak of $12.12½ a barrel in July of 1864. They reacted somewhat with the surrender of the Confederate Army, and again with the discovery of the sensational Pithole Creek Pool in 1865. When the discovery well was drilled in May, the town of Pithole Creek contained two houses; in August the production reached 5,000 bbls. a day and the population numbered 14,000. By November, the boom was nearly over and the town practically deserted. In 1866 what remained of the town was destroyed by fire. The amount of needless expenditure in unnecessary wells and buildings will never be known.

Lower Oil Field Opened

There is little of the sensational in the record of the next few years. Prices fluctuated mildly, production remaining practically stationary. However, in 1869 a discovery was made near Parker's Landing about 80 miles down the Allegheny River from Oil City that was destined to initiate one of the most serious periods of overproduction and bad feeling that the oil industry has seen. This well marked the beginning of the development of the "Lower Oil Field," a district covering a large part of Venango, Clarion and adjacent counties to the south of Oil City. Prices declined steadily as the district was extended, the average price falling from $5.64 a barrel in 1869 to $1.17 in 1874. In November of 1874, certificates were sold on the oil exchanges for 55 cents a barrel. Between 1871 and 1875 stocks in the oil regions increased from 567,458 bbls. to 4,174,189 bbls. Production doubled in four years, the total for 1874 being 10,926,945 bbls. Despite the warnings given by price declines, increasing production, and additions to storage, the number of completions increased each year.

Three Refining Centers

The first 10 years of the life of the oil business had seen the development of three great refining centers: Cleveland to the northwest of the producing area; Oil City in its center; and a group of plants in the leading coast cities, New York, Philadelphia, and Baltimore. The plants located in the field were largely controlled by producers, their associates, or personal friends. The capacity of this group was substantial but far from equal to the production of crude. Large sales were made regularly to the distant refineries. These were owned by men having little or no interest in production. The producers felt with considerable justice that these distant refiners had little sympathy for the producer. To prevent these refineries from becoming strong enough to dominate the crude oil market, the producer favored the local refiner whenever he could. Thus, when in 1872 it became known that a group of the distant refineries had combined together as the South Improvement Co. and were, because of the size of their shipments, to receive substantial rebates from the railroads, the producers were panic stricken. Mass meetings were held in Titusville and Oil City. A petroleum producers union was organized. Operators pledged themselves not to drill any new wells for 60 days, to shut down entirely on Sundays, and to sell no oil to the South Improvement Co. or its associates. Committees were appointed to handle the sale and delivery of oil to local refineries and to plants that were not allied with the combine.

No trunk pipe lines were yet in existence. The gathering lines and storage were largely in the hands of the railroads. The producers announced a boycott of the railroads giving rebates and decided to build their own gathering lines. They sent broadcast a pamphlet denouncing the South Improvement Co. and its activities. They petitioned the legislature of Pennsylvania to repeal the company's charter and demanded an investigation by Congress on the basis that the company was interfering with trade.

Overproduction Period

Public opinion supported the producers against the South Improvement Co. and the rebate-giving railroads. The State annulled the company's charter and the railroads soon decided that it would be the best policy publicly to cancel the rebates. The producers and refiners in western Pennsylvania were jubilant. The continuance of a competitive market appeared assured. The producer settled down to enjoy the fruits of competition for his oil. He also drilled a few more wells. But conditions did not improve. Prices of crude continued to drop. At the same time refined oil was weak in sympathy. The producers had brought more oil to the surface than the refiners needed. In turn the refiners had increased their capacities to a point greater than the needs of the consuming market. The same spirit that had urged the producer to increase his gross income by producing more oil was urging the refiner to devise a scheme through which he

(Continued on Page 110)

TO ASSIST STRAIGHT THINKING

This is the first of a series of eight articles on conservation by Ernest Raymond Lilley, Sc. D., Associate Professor of Geology at New York University, leader of the Oil Executives' Course at the Wall Street Division of the University, and author of "The Oil Industry" and "The Geology of Petroleum and Natural Gas."

The present articles are the outgrowth of discussions in the university course during the present year, covering the subjects of overproduction, waste, conservation, and government control. Professor Lilley states explicitly that he has no "cure-all" to offer, his purpose being simply to encourage straight thinking and to point out to the oil industry the consequences of certain policies. The series will be found both readable and informing. The subsequent articles will appear from time to time in coming issues of The Oil and Gas Journal.

Oklahoma's Promising Magnetic Areas

Four Sections Particularly Interesting and Worthy of Further Study. Garber County Is Discussed

By L. Spraragen

Accompanying is the concluding part of the article giving a magnetometer survey of the State of Oklahoma. Mr. Spraragen will discuss Texas in his next article, the first part of which will be published in The Oil and Gas Journal of November 22.

Garber County

[1] "The Garber Field is located in Sections 18 and 19, Township 22n, Range 3w, and Sections 13 and 24, Township 22n, Range 4w, Garber County.

"The location of the first drilling in the Garber area was the result of the indication of subsurface structure mapped on the surface formations. The outcrops are in cross-bedded sandstones, with intervening shales, which vary greatly in horizontal extent. However, it was possible to map the presence of the structure in a general way, but its extent was unknown before drilling. Subsurface structure (Plates 5 and 6) in the shallow zones is extremely difficult of solution because of the irregular and lenticular character of the sand bodies. Perhaps the true interpretation of the Garber structure can be obtained only from data garnered from the deeper sands."

"The structure as worked out on the top of the Siliceous lime is apparently a topographic high on which the geologic section from just below the Oswego-Big lime horizon to and including some of the Siliceous lime is absent. The Mississippi lime, Chattanooga shale, Viola limestone, Simpson formation, and a part of the Siliceous lime were removed during this erosion interval. The thin section of Cherokee shales present is due to the fact that this old hill was an island, which was not submerged until late Cherokee time, giving about 60-75 feet of Cherokee shale over the crest of the high. This results in the contact between the Siliceous lime and Cherokee shale. The geologic history of the Garber area is much the same as that of the Thomas and Tonkawa areas. The Wilcox is present only on the flanks of the fold. This contact between the Wilcox and the Siliceous lime roughly follows the 3,275-foot contour line, as shown in the accompanying cross section (Plate 5).

[1] State Geological Survey Bulletin 40-H.

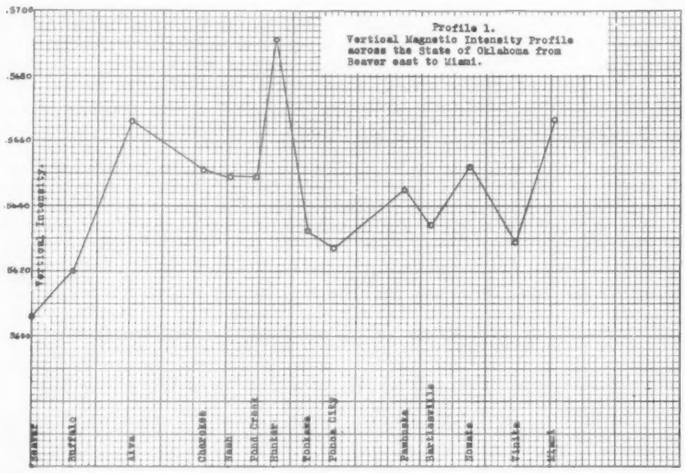


Plate 5 shows a generalized west to east geologic section across the Garber structure. Directly above this is shown a profile taken with a magnetometer over the same west to east line.

It is seen that immediately over the apex of the geologic structure the magnetometer profile shows an extreme low, the magnetic intensity on either side of this low point rising very rapidly.

In order to get a better and more complete picture of this particular case, additional readings were taken in the immediate vicinity of the Garber Field. The lower half of Plate 6 shows the results of this magnetic survey. It is worthy of comment that the entire area about the pool shows up as a magnetometer low.

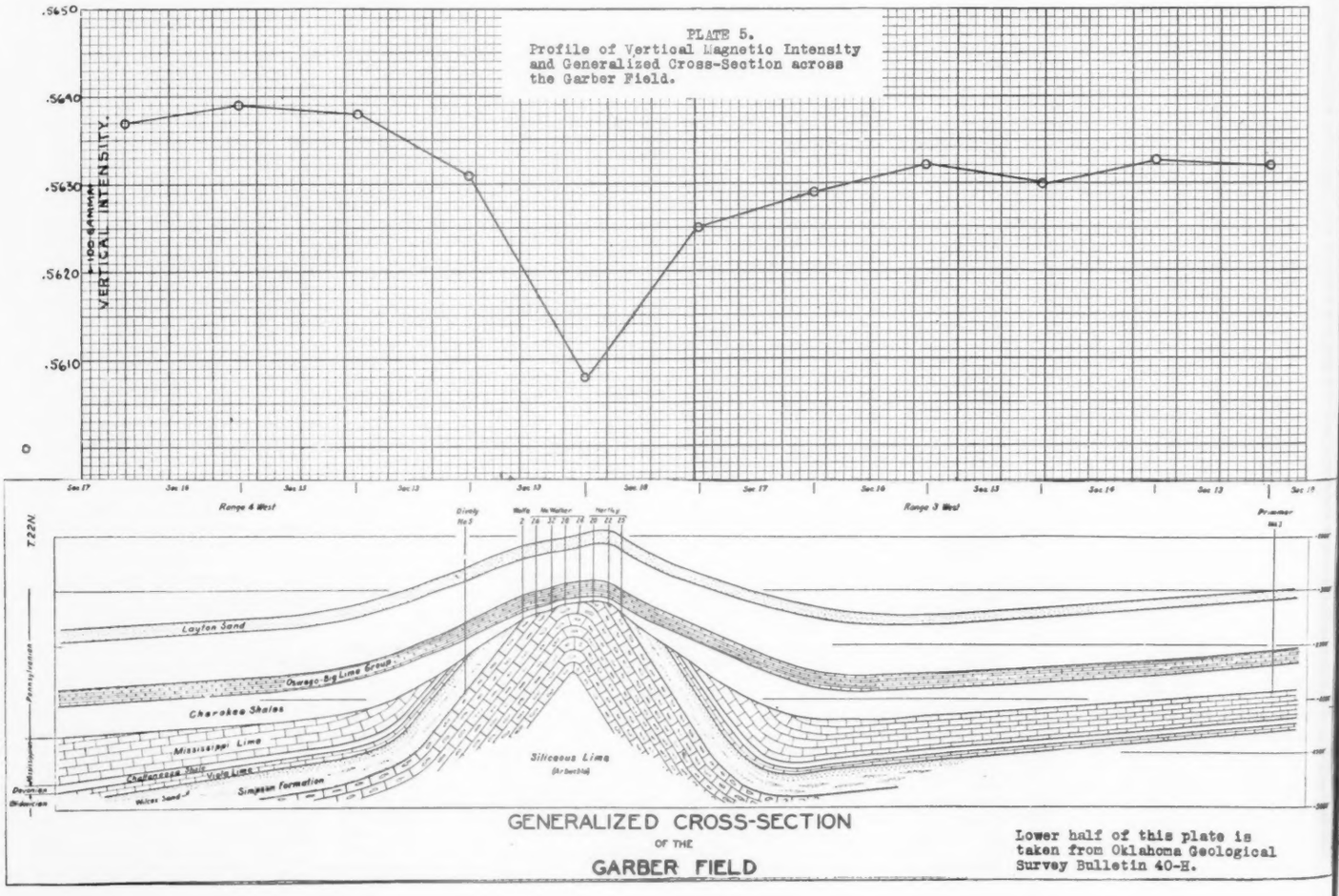
Surprising Resemblance

Comparing this magnetometer picture with the subsurface maps shown directly above the former, brings out the surprising resemblance in the general shape of the two pictures, with the exception, of course, that the magnetic survey gives a decided low instead of a high.

In many respects this particular survey illustrates the hypothetical case discussed by the author in an earlier article, "The Use of the Magnetometer in Prospecting for Oil-Bearing Structures" (The Oil and Gas Journal). It was shown in this article under the discussion of polarization and its effects on interpretation that it is possible to obtain a magnetometer low directly over a structural high if the conditions of polarity of the structure are such that it acts like a vertical magnet with the north end up.

Of course, there is still another possible cause for this particular phenomenon, and that is earth currents. It might possibly be that, due to the fact that some

(Continued on Page 108)



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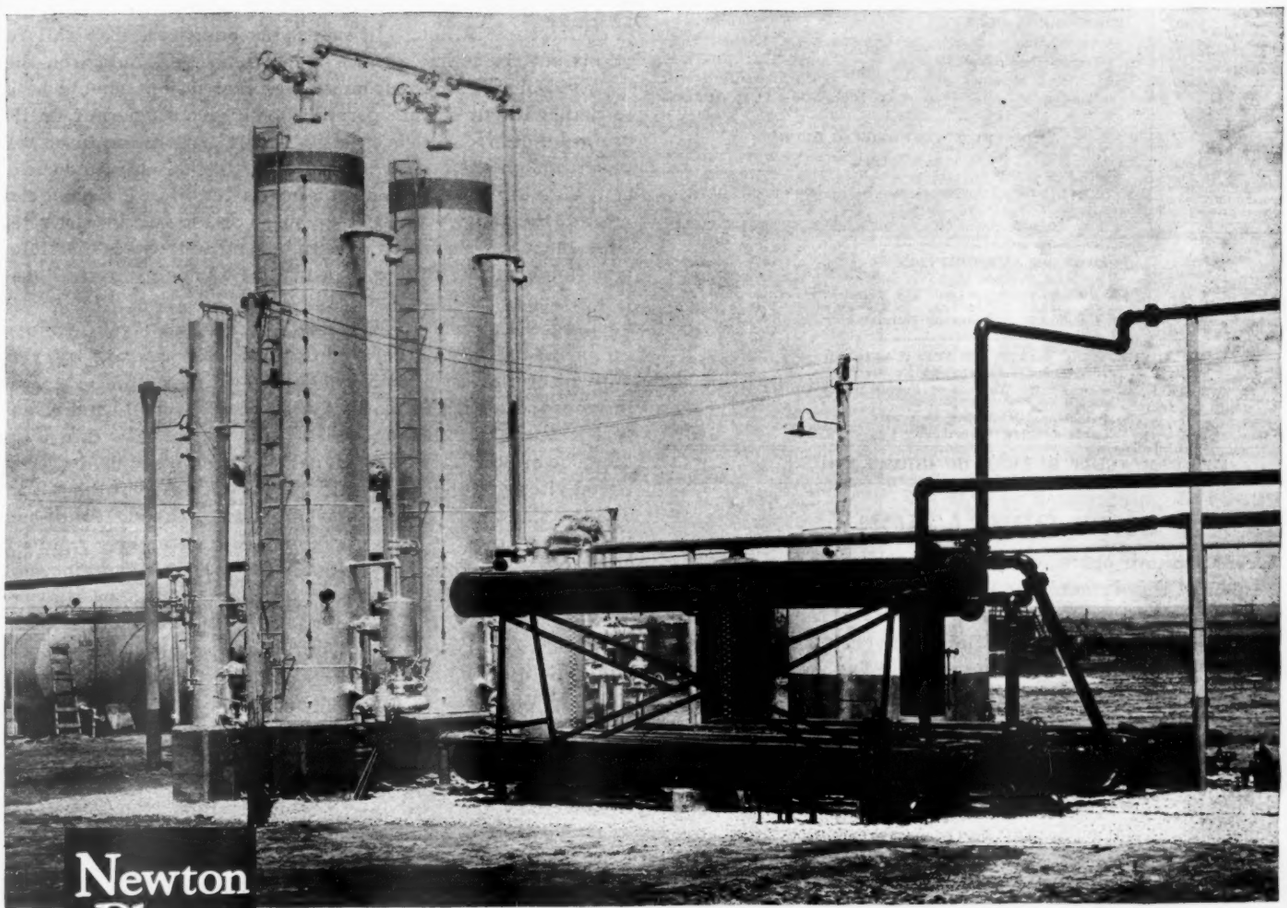
ABSORPTION PLANTS



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UNIT OPERATION

Five years ago unit operation was considered impracticable.

No one denied that it would be ideal, but competitive conditions at that time offered no hope of its being adopted.

Today unit operation is being seriously discussed as the logical evolution from the industry's progress in those five years.

When first proposed by Mr. Doherty he recognized the difficulties by advocating legal compulsion to overcome them, thereby bringing upon his project the resentment of all who were opposed to government interference.

Five years ago the industry was stubbornly individualistic, stoutly asserting a man's right to do as he pleased with his own. But in the interval developments have altered the opinion of the industry on many phases that seemed visionary a few years back. Today a man who would insist on that policy in defiance of the general opinion and welfare is considered an outlaw.

Who would have thought possible the co-operation displayed in Seminole, in West Texas and in California, and the overwhelming turn of sentiment throughout the industry which not only approves but demands a continuation of that policy?

What was tardily attempted through co-operation at Seminole and more timely set in motion in West Texas and California has done more to sway opinion towards unit operation than all the laws that could be put on the statute books.

It is seen now that curtailment is only a remedy for conditions that unit operation could prevent.

Instead of waiting to call the doctor until the industry is down with the disease it is coming to be realized that it may be better to submit to inoculation against having the disease at all.

So, naturally, from considering what has been accomplished by co-operation for curtailment the next step is to study the possibilities of the unit plan as locking the stable door before the horse can be stolen.

The original objections to the unit plan, aside from the almost universal repugnance to governmental control, were that legal compulsion was impossible under the constitution. The same arguments were raised against the possibility of co-operation for curtailment but were overcome by the voluntary co-operation of the industry, which involved none of the difficulties in compulsion.

With the industry firmly convinced of the benefits of co-operation and the overpowering necessity for it, if the industry is to prosper, the advantages of unit operation, clearly apparent as an ideal, are now being considered as attainable.

Not everyone will admit this even yet, but with a proper campaign of education practically all can be brought to that view in time. It should not be much more difficult than it was to win adherence to the policy of co-operation for conservation and it will have the advantage of that precedent.

Discussion should center upon what form the unit operation should take. Possibly it may be found that it will be impracticable to adopt any general plan that would be applicable everywhere.

Difference in fields, in sands, in conditions, may call for variations but the practical men in the industry should iron them out.

Mr. Doherty's first proposal was that no one should be allowed to drill without a state permit; or be given a permit until an exploration district had been established; exploration to be restricted to within one-half mile inward from the outer boundaries, which strip should not be drilled for a year after oil or gas had been found or until the district had been enlarged or another district established adjacent to it. Royalties were to be paid to trustees divisible among land holders according to the calculated amount of oil or gas underlying each man's land.

Judge Beaty at Fort Worth suggested that "a valid statute might be enacted defining the minimum drilling site as, say, ten acres, with discretion lodged in some supervising authority to vary this in accordance with formations and other physical conditions in different pools, prohibiting the drilling of wells within a specified distance of boundary lines so that wells could not be drilled on fractional sites or town lots until they could be consolidated into full drilling sites, with some provision whereby the owners of such fractions might receive drainage money in lieu of their right to drill." But the judge thought even that would involve many possible complications and perhaps it was "better to endure the ills we have."

Speaking before the Federal Oil Conservation Board, Judge Beaty later suggested that it might be feasible to reverse this idea and allow the owner of the fractional site to drill but making him liable to those whose property should be unduly drained, and perhaps requiring him to file a bond before drilling.

J. O. Lewis has mentioned four methods of unit operation employed in Oklahoma fields: where one interest buys all the properties; where undivided interests are assigned between the various property owners upon an agreed valuation so that each owns an interest in every other property, one company being selected to operate the lease; where the properties are assigned to a trusteeship and operated in the common interest, expenses and profits being divided pro rata upon an agreed appraisal, or where the properties are exchanged for stock in a new corporation upon an agreed basis.

Mr. Lewis and Mr. Dunn advocate unit operation because: "A pool of oil is a natural unit no matter how large and operations cannot be conducted independently without increasing costs and reducing recovery and profits.

"Wells can be more effectively located to get the maximum production and to minimize the waste of gas and oil.

"Unit development would permit the use of improved production methods most of which rely on control of pressure in the sand, including back pressure, stop-cocking, gas or air lifts, holding in oil gassy wells. Under such development artificial pressure can be applied earlier, production can be sustained over a long period and can be controlled more in accordance with demand, minimizing fluctuations in prices," prolonging the supply and by avoiding unnecessary cost, benefiting the consumer.

Dry hole donations and the pooling of leases are familiar yet are on exactly the same principle as unit operation, only falling short of the fullest utilization and advantage.

The subject is at present engaging the thought of many of the leading men in the industry. Co-operation on curtailment after a field is opened is limited in its value. We cannot rely on it entirely. Unit operation, in some form to be worked out by experience, may be the next forward movement.

DRESSER Couplings

Below is shown a typical 22″ Dresser Installation. It is a 300 mile line recently completed in East Texas. When tested at 400 pounds pressure, there was not a single case of Coupling trouble.

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DOMINATE

BURNING GAS WELLS RETARD DEEP ZONE WORK AT SANTA FE SPRINGS

LOS ANGELES, Calif., Nov. 12.—Deep zone exploitation at Santa Fe Springs has been retarded during the past 60 days by two gas wells which blew in out of control. While George Getty's No. 17 Nordstrum, which ran wild and burned for more than seven weeks before being capped, has turned into a prolific producer doing 5,800 bbls. of clean 35-gravity oil daily, the Bellevue Oil Co.'s No. 2 Grohs is still burning fiercely. No. 17 Nordstrum blew in doing about 20,000,000 feet of natural gas and 700 bbls. oil daily September 16 and was finally brought under control November 3. One week later on November 10 the Bellevue's No. 2 Grohs came in out of control and took fire within a few minutes after the crew had scampered out of the rig and shouted a warning to those working on adjoining wells, some of which were located within 50 feet.

Several days elapsed before any general plans were instituted for the control of Getty's wild gasser, but operators did not lose any time in taking drastic action when the Bellevue's well blew in last Saturday. A general consultation was held immediately and Harry Maddren, production superintendent of The Texas Company, was elected fire chief with full authority to proceed with any work deemed necessary to prevent the spread of fire. Orders were immediately issued to demolish any wooden rigs and tanks remaining in the surrounding area which had not yet been burned. No. 2 Grohs is burning with a flame about 200 feet in height and control work will be hampered to some extent by a rain which began falling late Tuesday night. Engineers have been contemplating the advisability of blowing out the flame with dynamite, but in the absence of any gates or blowout preventers on the well it seems logical to assume that it will be tunneled and brought under control from beneath the surface.

At least 50 wells have been directly affected by these two gassers at Santa Fe Springs either through enforced suspension of work or destruction of rigs and equipment.

York and Lockhart's No. 1 McKeon, which came in last week doing 3,000 bbls. daily, is located within 100 feet of No. 2 Grohs, and although it was immediately shut in and corrugated sheet iron screen thrown up, the top of the rig took fire before being pulled down. The Union Oil Co.'s No. 30 Bell an offset to the Bellevue's No. 2 Grohs, was scheduled for completion the same day that the latter got loose, but it was closed and no damage has been sustained up to the present. All wooden rigs within the immediate area of this fire have been demolished and steel derricks are being protected by a constant stream of water from sprinkling systems which were hastily run up to the crown block of each rig.

Heated Gas May Give Greater Extraction Of Crude From Sands

NORMAN, Okla., Nov. 10.—A plan dealing with the extraction of crude oil from sands by the use of heated gases was presented before approximately 170 engineers and geologists who met here yesterday and today at the University of Oklahoma by Ben E. Lindsly, petroleum engineer of the Bartlesville station of the United States Bureau of Mines. The meeting was sponsored by the Oklahoma Geological Survey and the schools of petroleum engineering and of geology of the university.

In explaining his plan, Mr. Lindsly said not much more than 30 per cent of the quantity of oil present in a developed field can be recovered by present practices. He believes that, if the oil, while still in its natural reservoir, could be raised to a fairly high temperature, most of the oil would be volatilized and freed from the sand. If pressure is applied along with the heat, the greatest portion of the oil in the sand would be easily recovered.

The method involves the putting down of a shaft to the oil sand and construction of shaft tunnels to radiate for 50 feet in four directions. In the tunnels, preheated gas mixed with air would be forced into the oil sands to obtain the results desired.

The section on geology met yesterday afternoon and was presided over by Dr. V. E. Monnett, director of the school of geology. A paper on "Stratigraphic Relations of the Red Beds," was read by Gerald A. Waring, head geologist for the Margay Oil Co.

A talk on "Geophysical Methods," was given by Dr. W. P. Haseman, former head of the research department of the Marland companies. C. O. Rison of the Indian Territory Illuminating Oil Co., Bartlesville, spoke on methods employed in shooting wells.

DEATH OF D. E. GREER

HOUSTON, Tex., Nov. 13. — D. E. Greer, of Houston, general counsel for all the Gulf companies, died at his home Tuesday morning following a brief illness. Mr. Greer was 72 years old and started with the Gulf at Beaumont, Tex., and has been in the legal department of these companies since 1904.

Sinclair P. L. From Wyoming to Missouri Definitely Shut Down

The 716-mile oil line of the Sinclair Pipe Line Co. from Casper, Wyo., to Freeman, Mo., is permanently shut down. Regular shipments of oil from the Wyoming fields ceased when the United States Government annulled the contract for the sale of its royalty oil to the Sinclair Crude Oil Purchasing Co. on October 22 and since that time very little oil has been moved through the line.

The pipe line company has found it necessary to transfer, or to discharge, employes other than those actually needed to look after the property. There are 16 pump stations on the line and some of these will be kept open with greatly reduced forces and a few maintenance men will be kept in service. Aside from these small signs of activity the line, which is a combination 12-inch and 10-inch of large carrying capacity, will be idle until the next move of the company is made. It has been reported that much of the material and equipment of the Wyoming line will go into the construction of the line from Oklahoma to Chicago, but no announcement has been made by the company bearing on this.

The Sinclair line has a capacity of 25,000 bbls. daily but has been running only about 3,600 bbls. daily in recent months. Sinclair has about 11,000,000 bbls. crude stored in the Salt Creek area which will be left there temporarily.

OKLAHOMA P. L. STATEMENT

The Oklahoma Pipe Line Co.'s statement for October shows runs of crude oil 3,549,011.75 bbls., daily average, 114,484.25 bbls.; deliveries 3,432,766.53 bbls., daily average 110,734.40 bbls.; stocks 3,151,537.96 bbls. Compared with its September statement this indicates a decrease in runs of 6,066 bbls. per day, a decrease in deliveries of 3,716 bbls. per day and an increase in stocks of 65,922 bbls. per day.

J. H. LeGOUILLON DEAD

James Henry LeGouillon, of Tulsa, district superintendent for the Sinclair Oil & Gas Co., died Sunday, October 10, after a short illness. The funeral and burnal were held in Tulsa.

HIGH SPOTS IN FIELD NEWS

KANSAS

Marion County wildcat sprays 5 bbls. an hour.

NORTH LOUISIANA-ARKANSAS

Deep gas horizon found in Champagnolle. Stray sand hit in Pine Island.

Showing of oil found in Ellis County wildcat of Phillips Petroleum Co.

EAST TEXAS

New deep gas reserve indicated in East Texas area, southwest of Logansport, La.

SOUTHWEST TEXAS

Refugio oil field has been extended to north.

Wildcat in Southwestern Bastrop County is flowing 175 bbls. in Serpentine.

GULF COAST

New salt dome discovered in San Felipe, on the Austin-Waller County line. Second good producer in Gay Hill Field, Washington County.

A second well came in at Gay Hill Monday flowing 127 bbls. an hour and after cleaning itself increased production.

East Hackberry Field was extended more than a half mile to the east by a well which flowed 2,000 bbls. initially.

Gulf Refining Co.'s No. 12 Lutcher Moore was brought in flowing 350 bbls.

MICHIGAN

Two 1,000-bbl. wells brought in at Muskegon, one an important extension to the field.

NEW MEXICO

Skelly Oil Co.'s test in Lea County flows 100 bbls. in 12 minutes.

OKLAHOMA

Greater Seminole again declined, production Tuesday morning being 292,509 bbls. St. Louis Pool produced 121,182 bbls.

The I.T.I.O. Co. well on the outskirts of Oklahoma City had a small showing at 6,401 feet.

Amerada and Laurel Co.'s No. 1 Hallum, west of Maud, produced 770 bbls. in 24 hours, cutting 2 per cent b.s. and a trace of water.

CALIFORNIA

Deep zone exploitation at Santa Fe Springs has been delayed by two burning gas wells. Getty's No. 17 Nordstrum is now producing 5,800 bbls. of 35 gravity. Bellevue Oil Co.'s No. 2 Grohs is still burning. Fifty wells have been affected either by suspension of work or destruction of rigs.

Late News from the Field

GULF COAST

HOUSTON, Tex., Nov. 13.—The Gay Hill district of Washington County late yesterday proved itself a field when its second well, Sun Oil Co.'s No. 2 Grote, came in flowing at the rate of 127 bbls. an hour and after cleaning itself increased its production over that figure. The oil tested 27 gravity at 80 degrees and is coming from sand at a total depth of 1,250 feet. This well is 688 feet to the northwest of the discovery well, No. 1 Grote, which came in several weeks ago flowing 150 bbls. daily from sand at 1,154 feet and which now is producing around 50 bbls.

The East Hackberry Field of Cameron Parish, Louisiana, was extended more than a half mile to the east and into Calcasieu Lake Tuesday by Louisiana Land & Exploration Co.'s No. 3-B Calcasieu Lake, which came in flowing initially 2,000 bbls. of pipe line oil from a depth of 3,941 feet. This also is this company's first producing well.

Gulf Refining Co.'s No. 12 Lutcher-Moore was brought in early Tuesday flowing 350 bbls. daily at a total depth of 4,188 feet.

OKLAHOMA

The greater Seminole area again declined on Tuesday morning of this week. The production by pools for the 24 hours ending 7 a.m. Tuesday follows:

	Bbls.
Little River	109,559
Maud	2,364
Mission	362
Bowlegs	49,636
Earlsboro	76,986
Seminole	42,043
Searight	10,619
Total (from 1,270 wells)	292,509

The St. Louis Pool for the period mentioned above produced 121,182 bbls.

The wildcat well of the Indian Territory Illuminating Oil Co. on the outskirts of Oklahoma City caused some interest by a small showing of oil in what is thought to be the Simpson sand at a depth of 6,401 feet. The well will be standardized at that depth. It is No. 1 fee, C SE SE Section 24-11-3w, in Oklahoma County.

An important development in the Maud area is the showing up of some b.s. in the newly discovered well of the Amerada Petroleum Corp. and the Laurel Oil Co. This well is No. 1 Hallum, NE cor. SE SE Section 1-8-4, and it produced 770 bbls. the 24 hours ending Tuesday morning, 7 a.m., against a back pressure of 200 pounds. The product of the well is cut 2 per cent b.s. and a trace of water.

KANSAS

The most interesting news which has originated in western Kansas in some

(Continued on Page 166)

New Acreage Play in Coleman County

Cooke County Wildcat Has Showing for 20 Bbls. Geophysical Exploration in Progress in the Panhandle Fields

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 12.—Coleman County in the Ranger district and Cooke County in the Wichita Falls district were the most prominent in the wildcat reports from North Texas while developments in the proven areas were routine in character. The weekly estimated production report recorded a 2,719-bbl. drop in daily average production when Gray County in the Panhandle declined sharply. Wichita Falls district registered an increase when Wilbarger County's production went up to 32,613 bbls.

An acreage play of considerable size just west of Coleman in Coleman County followed the showing found in Midsun and Richardson's No. 1 McClelland, D. M. McDonald Survey No. 672 when the well got a show in the Fry sand at 2,450 feet. Nine feet deeper a little water was encountered but the bit was still in sand. In the event a producer is not made in this zone the hole will probably be carried to the Caddo.

Atlantic Oil Producing Co. purchased a quarter interest in the well and the 40-acre tract on which it is being drilled. Empire Gas & Fuel Co., Simms Oil Co. and Skelly Oil Co. were among the other buyers. Prices ranged from $25 to $55 per acre.

In the Overall Pool of Coleman County, Continental Oil Co. and associates' No. 1 Overall in the John H. Barclay Survey No. 700, is making a remarkable record. The well is several weeks old and is holding close to its initial production. The following seven-day gauges of the well's production are for the week ending November 8. November 2, 291 bbls.; November 3, 696 bbls.; November 4, 666 bbls.; November 5, 677 bbls.; November 6, 675 bbls.; November 7, 669 bbls.; and November 8, 672 bbls.

Five new wells were completed in the Cook ranch in Shackelford County by Roeser and Pendleton and the Marland company. The best of the group was a 75-bbl. producer and one dropped below the average and made only 10 bbls. Five grass root wells were completed in Callahan County with The Texas Company's No. 6 Hatchett leading the group by making 31 bbls. from sand at 333-49 feet.

Eleven wells were added to Brown County's list and three more dry holes were abandoned during the week. Woodley Petroleum Co. completed the banner producer on its recently acquired property and it made 175 bbls. initially. The remaining counties were quiet and a quartet of dry holes, two of which were deep tests, were reported in Stephens County.

Geophysical Tests in Panhandle

Going on north to the Panhandle nothing exciting was reported from the wildcat territories and reports from the Lefors area in Gray County were drab. Considerable wildcat acreage buying is being reported in the South Plains and geophysical crews still are working in that general territory.

About the center of Bailey County the finding of a torsion balance high resulted in quite a wildcat acreage buying campaign. One company bought a 6,000-acre checkerboard spread in that territory. In the southeastern corner of Cochran County, Roxana Petroleum Corp. and Texas Pacific Coal & Oil Co. bought extensively in wildcat acreage.

Production of the Panhandle fell off sharply, mainly because of the decline in old Gray County wells and the decline of flush producers in the Lefors area which is having some trouble from water encroachment. During the first week in November crude was being pulled from storage at the rate of 5,138 bbls. daily.

Production and Shipment

Below is given a comparative table of production and crude shipments in the Panhandle for the weeks ending October 31 and November 3, respectively.

Pipe Line Movements	Oct. 27 bbls.	Nov. 3 bbls.
Gulf P. L. Co. to coast	16,063	17,134
Humble P. L. Co. to coast	17,177	19,524
Prairie P. L. Co. to Okla.	13,626	13,301
	46,866	49,959
Deliveries to Refineries		
Alamo Co.	7,623	7,436
Amarillo P. & R. Co.	1,000	750
Amarillo Ref. Co.	3,031	3,069
McMillan Co.	5,892	5,907
Pampa Ref. Co.	2,500	2,773
	20,046	19,935
Tank car shipments	4,840	4,149
Total production	68,480	68,905
Total distribution	71,752	74,043
From storage	3,272	5,138

It is reported Phillips Petroleum Co. is planning to build a 6-inch line from Stinnett in Hutchinson County and solicit crude connections in the new Armstrong Pool in Moore County. A few wells in that pool are scheduled for completion during the current week. Production of Moore County declined 350 bbls. due to changing lifting equipment on the Skelly Oil Co.'s Armstrong and Byrd lease.

Aside from the few wells completed in Gray County only one other oil well was completed in Panhandle. Phillips company completed a 150-bbl. well in Hutchinson County. A big gasser was completed in Wheeler County making 53,000,000 feet of gas. Another gas well in the same county was good for 12,000,000 feet of gas.

Wilbarger Resumes

With the resumption of drilling in Wilbarger County which has been virtually shut down for the lack of water, the Wichita Falls district is expected to show added life. Almost 100 operations were shut down in that county a short time ago.

Cooke County was enlivened again when W. D. Griffith and associates' No. 1 D. Wheelock, northeast corner W. Teal Survey, showed for a 20-bbl. pumper in broken oil sand at 1,314-17 feet, after a 5-quart shot. The well is 6 miles southeast of Gainesville and is in rank wildcat territory. It is surrounded by dry holes that had showings.

Estimated Daily Average Production
NORTH TEXAS
Week Ending November 10

Panhandle district—	Bbls.
Carson County	5,940
Gray County	26,970
Hutchinson County	30,275
Moore County	1,210
Potter County	20
Wheeler County	685
Total this week	65,100
Total last week	67,905
Decrease	2,805
Wichita Falls district—	
Archer County	19,357
Baylor County	90
Clay County	502
Cooke County	2,242
Jack County	1,383
Montague County	7,881
Throckmorton County	804
Wilbarger County	32,613
Young County	8,623
Wichita County	26,256
Total this week	99,751
Total last week	98,911
Increase	840
Ranger district—	
Brown County	10,335
Callahan County	3,620
Coleman County	3,850
Comanche County	1,260
Palo Pinto County	355
Ranger	5,919
Shackelford County	10,500
Stephens County	7,668
Total this week	43,507
Total last week	44,261
Decrease	754
Grand total this week	208,358
Grand total last week	211,077
Decrease	2,719

PANHANDLE COMPLETIONS

Gray County

Danciger Oil & Refining Co.'s No. 1 Thut, located 330 feet from north and east lines of east 90 acres, W half, Section 3, H.&G.N. Survey, was shot with 320 quarts at 2,740-2,845 feet and made 25 bbls. of oil and 1 bailer of water. This well was drilled to a total depth of 2,860 feet. Ray & Massie's No. 3-A Chapman, located 990 feet from the north line and 330 feet from the east line, Section 51, Block 25, H.&G.N. Survey, swabbed 475 bbls. at 2,863-64 feet. The location was abandoned on Panhandle Refining Co.'s No. 1 G. H. Saunder. Ellzey and others' No. 1 J. M. Bell, located SE cor. of NW, Section 183, Block B-2, H.&G.N. Survey, was temporarily abandoned. Phillips Petroleum Co.'s No. 3 Johns, located in Section 87, Block 3, I.&G.N.R.R. Survey, flowed 237 bbls. from lime and granite wash encountered at 3,119-25 feet.

Hutchinson County

Phillips Petroleum Co.'s No. 12 J. A. Whitenburg, located on the E. Tomlinson Survey, was shot with 100 quarts at 2,875-2,914 feet and had an initial production of 150 bbls.

Wheeler County

Consolidated Gas & Utility Co.'s No. 1 M. Ackley "A" made 53,000,000 feet of gas at 1,855-1,925 feet. Lone Star Gas Co.'s No. 1 Trostle, C NW NE, Section 90, Block 17, H.&G.N. Survey, made 12,000,000 feet of gas at 1,745-60 feet, 430 pounds rock pressure and was drilled to a total depth of 1,820 feet.

RANGER DISTRICT COMPLETIONS

Brown County

Bradstreet & Smith's No. 14 Stout was shot with 40 quarts at 1,168-95 feet and made 18 bbls. Gilman & McMurray's No. 6 Hickman was dry and abandoned at 1,464 feet. Their No. 20 Teston was shot with 30 quarts at 1,170-94 feet and made 20 bbls. Kone Production Co.'s No. 18 Hickman made 35 bbls. at 1,257-72 feet. Its No. 19 Hickman made 25 bbls. at 1,267-77 feet. Midland Oil Co.'s No. 10 Butler was shot with 8 quarts at 1,282-90 feet and made 20 bbls. The Texas Company's No. 3 Byler made 30 bbls. at 1,306-21 feet. Woodley Petroleum Co.'s No. 14 Hickman made 175 bbls. at 1,242-58 feet. Bruce's No. 1 Shields made 500,000 feet of gas at 505-20 feet. Their No. 2 Shields made 15 bbls. at 489-509 feet. Crown Petroleum Corp.'s No. 1 Hale was dry and abandoned at 542 feet. Hammon & Garrett's No. 1 Childress was dry and abandoned at 1,351 feet. Lloyd and others' No. 9 Collier was shot with 6 quarts at 424-31 feet and made 15 bbls. Lloyd and others' No. 10 Collier was shot with 6 quarts and made 40 bbls.

Callahan County

Cranfill & Reynolds' No. 2 Scott was dry and abandoned at 691 feet. Moutray Oil Co.'s No. 2 Hatchett made 10 bbls. at 349-57 feet. Its No. 3 Hatchett made 15 bbls. at 353-65 feet. Reiter-Foster Oil Co.'s No. 2 Hatchett made 5 bbls. at 341-46 feet. The Texas Company's No. 5 Hatchett made 14 bbls. at 339-53 feet. Its No. 6 Hatchett made 31 bbls. at 333-49 feet. Thomas & Gallahger's No. 1 Barr was dry and abandoned at 1,935 feet.

Coleman County

Pearce and others' No. 1 Eddington was dry and abandoned at 450 feet. Barnsdall Oil Corp.'s No. 1 Kell-Stockard made 3,316,000 feet of gas at 1,390-96 feet. Chapman's No. 1 Fuller made 12 bbls. of oil and 12 bbls. of water at 1,568-74 feet. Cunningham and others' No. 4-C Jennings was shot with 8 quarts at 1,132-45 feet and made 115 bbls. Derby Oil Co.'s No. 9 Jennings was dry and abandoned at 1,225 feet.

Eastland County

Moody and others' No. 3 Dyer was drilled to a total depth of 3,910 feet, plugged back to 3,820 feet and made 225,000 feet of gas at 3,790-97 feet. Root, Huff & Duff's No. 9 Ray made 4

(Continued on Page 168)

TEXAS PANHANDLE WILDCATS

Week Ended November 10

CARSON COUNTY

Company, Well, Farm, Name, Section and Block—	Remarks—
Denson et als' No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W ½ NW, Sec. 184, Blk. 2, I.&G.N. Sur.	S.D. 725 ft.
Duncan & Reiger's No. 1 J. B. Hodges, 330 ft. from E line and 330 ft. from S line of W½ of NW¼ Sec. 112, Blk. 7, I.&G.N. Sur.	Rig on ground.
Magnolia Pet. Co.'s No. 6 fee No. 244, 660 ft. from N line and 660 ft. from E line of E ½, Sec. 91, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 495 ft.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44, Navajo Oil Co.'s No. 2 Poling, 660 ft. from W and 330 ft. from N lines, N 30 acres SW, Sec. 22, Blk. X-2, T.T.R.R. Sur.	S.D. 400 ft. S.D. 1,950 ft.
Reynolds et als' No. 1 E Cooper, 330 ft. from S line and 330 ft. from E line of NW, Sec. 5, Blk. 9, I.&G.N. R.R. Sur.	S.D. 260 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E ½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Drlg. 700 ft.
Skelly Oil Co.'s No. 10 Schafer, 1,320 ft. from W line and 330 ft. from S line of N½ Sec. 488, Blk. 3, I.&G.N.R.R. Sur.	Rig on ground.
Stubblefield et als' No. 1 Cooper, 340 ft. N and 330 ft. W line SE, Sec. 5, Blk. 9	Drlg. 850 ft.
Travis et als' No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&N.G. Sur.	Fish. 2,410 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E of NW cor. Sec. 18, Blk. 3, A.B.&M.	Spud.

CASTRO COUNTY

Colorado O. & R. Co.'s No. 1 M. Siemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.

CHILDRESS COUNTY

C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	S.D. 4,005 ft.
The Texas Co.'s No. 1 Smith, 100 ft. each way from NW cor. Sec. 174, Blk. H, W.&N.W. Sur.	U.R. 6-in. csg. 3,810 ft.

COCHRAN COUNTY

Clark & Melat's No. 1 C. C. Slaughter, 1,650 ft. E and 660 ft. S of NW tract, League 118, Knox County School land	Rig blown down.
Marland Prod. Co.'s No. 1 C. C. Slaughter, 330 ft. from S and W lines, Carson County School land, Tr. 130	Fish. 1,550 ft.

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Ward County Well Increases Output

Yates Pool Extended Half Mile to Southwest. Surprise Well in Hendricks Pool Is Estimated at Over 37,000 Bbls.

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Nov. 12.—Although wildcats in various other counties of West Texas flashed into the picture as did big wells in Pecos and Winkler Counties, Shipley and associates' Ward County Pool opener kept the attention of West Texas operators centered on the southeast part of Ward. Yates was extended approximately one-half mile to the southwest and a surprise well in the south end of the Hendricks Pool was drilled in actually flowing in the tanks at the rate of 37,000 bbls. daily. This well is estimated to be good for 50,000 bbls. daily.

Shipley and associates' No. 1 Hazlett, Section 17, Block 5, H.&T.C. Survey, southeastern Ward County, made its best flow Sunday when it headed for 15 minutes and made 125 bbls. Pay record is reported to be in sand at 2,480-81 feet.

What the well actually makes when it heads had not been given out generally and all of the flows have been estimated. The rig is roped off for quite a distance.

During the past week the well headed every 36 hours and made flows that were estimated to be anywhere between 50 bbls. and 75 bbls. The owners are straight reaming casing to the top of the pay and will probably drill in during the current week. Five 500-bbl. tanks are being built on the lease.

It is reported the Humble Pipe Line Co. investigated with the view of building a pipe line from Humble company's loading rack at Monahans to the well. According to the same report Humble company deferred action until completion of the well. A line approximately 12 miles long would be necessary.

In the meantime a brisk acreage play started, but very little acreage was open and the trading faded into a more or less frantic search. Some of the companies unable to obtain acreage are buying royalties. Some of the acreage 2 miles southwest of the well changed hands at a $250 base.

Some companies are buying on the theory that big production will be found west of the Shipley well while others are buying on a theoretical northwest trend. This well is expected to create an active wildcat play northwest from Grand Fall to the Winkler County line.

Rector Oil Co.'s test, No. 1 Johnson, C Section 10, Block 32, 4½ miles southwest of the Shipley well, also is being followed closely. This well had a show of oil from 2,075-85 feet in dark sandy shale. Progress is being delayed by a fishing job at 2,085 feet. Top of the lime in this well is expected to be found around 2,180 feet.

Surprise in Winkler

Winkler County's surprise well was Southern Crude Oil Purchasing Co. and Westbrook and Thompson's No. 1 Hendricks T-88-D, NE cor. S half, Section 4, Block B-12, down in the south end of the pool. After topping the pay 2,725 feet the well started off as an average well. At 2,890 feet it started making its big flow and put 1,550 bbls. in the tank the first hour. At that rate the well is a 37,200-bbl. producer.

Reports from the well read that part of the oil escaped and field men for the companies estimate the well good for 50,000 bbls. It is three-quarters of a mile northwest of the Mining and Engineering Co.'s south extension in Section 10, Block B-12.

Offsetting Southern Crude Co.'s big well on the D lease to the east, Prairie Oil & Gas Co.'s No. 1 Cowden, NW cor. NW SW Section 3, Block B-12, is flowing 140 bbls. of pipe line oil hourly from pay at 2,790 to 2,907 feet.

Over on the southwest flank of the structure Southern company's No. 5 Hendricks T-88-I, Section 30, Block B-5, is making 400 bbls. per hour from pay at 2,820 to 2,974 feet. This well is a quarter of a mile northwest of Wink.

Two miles north of the producing limits of Hendricks, Cranfill & Reynolds' No. 1 Hendricks-F, NE cor. NW Section 16, Block 26, is running low. Surface elevation of this test is 2,874 feet and it is drilling in anhydrite at 2,730 feet, 144 feet above sea level. The lime was expected to be found much higher than the present total depth in this section.

Deep Test

Southern Crude Oil Co.'s deep test in the prolific north end of the pool, No. 1 Hendricks T-67-3-B, SW cor. Section 33, Block 26, is flowing 20,000 bbls. of sulphur water from 3,600 feet and drilling lime at 3,696 feet. This well was formerly completed at 2,830 feet flowing 10,000 bbls. of fluid, 95 per cent water. The test will probably be drilled to around 4,500 feet unless production is found higher up.

Hendricks had a lean week so far as new production was concerned. The combined production of the five wells completed was only 8,126 bbls. For that matter, all of West Texas slumped in that respect. There were 24 completions, 14 of which were producers with a combined production of 20,951 bbls. The 10 dry holes were scattered over nine counties, with Jones County reporting two failures.

Roxana Petroleum Corp. trebled production of its No. 1 Hendricks-F, SW cor. SW, Section 46, Block 26, when the well was deepened. It was formerly completed at 2,627-75 feet making 5,000 bbls. After drilling deeper to 2,683 feet the well started off making 14,500 bbls. daily at the rate of 600 bbls. hourly. The well is showing no water and was pinched to 1,114 bbls. daily.

Yates Pool Extended

The Yates Pool in Pecos County was extended to the southwest by McMan Oil & Gas Co.'s No. 2 Mith-C, 2,650 feet south and 725 feet west of the NE cor. Section 25, Block 194. It was bottomed at 1,686 feet and flowed 240 bbls. hourly.

North of the Henshaw Corp.'s producer west of the Roberts Pool in southern Howard County, Taylor Link Oil Co.'s No. 1 Kloh-Rumsey, Section 3, Block 32, T-2-S, was completed for a much better well than its initial showing indicated. After a 400-quart shot at 2,260 to 2,357 feet the well was put on the pump and made 600 bbls. the first 24 hours.

Roberts Pool Water

Water intrusion in the Roberts Pool is spreading to some extent. The deep lime producers in three directions from the Magnolia company's discovery well are making some water.

L. C. Harrison and associates' No. 1 Dodge, SE cor. Section 9, Block 30, T-1-S, continues to keep excitement warm in that territory. The well topped pay at 2,657 feet and is now shut down at 2,690 feet. In its present incomplete state it is estimated good for around 5 bbls. daily. The owners plan to resume operations within a few days.

One mile south of production in the Church and Fields Pool in Crane and Upton Counties, Keck Investment Co.'s No. 1 McClintic, NE cor. Section 206, Block F, is being followed closely. The well had 250,000 feet of gas at 2,700 feet in lime and anhydrite. Ten-inch casing is being set at this depth.

Noodle Creek

Noodle Creek in Jones County was extended approximately a half mile to the northwest by Phillips Petroleum Co.'s No. 1 R. Windham, SE cor. Section 17, Block 19, T.&P. Survey, when it made 60 bbls. in six hours. Pay was topped at 2,489 feet.

Most of the interest in Jones County, however, was centered about the Tiner and Bickley Pools on north of Noodle Creek. Roeser and Pendleton's No. 1 Grayson-B, Section 19, and about half a mile north of production, may be another link in connecting the two pools. The well swabbed 40 bbls. from 2,563 feet after which the swab was lost. This well was on top the pay several days ago but completion was delayed when the rig was pulled in.

In the same pool The Texas Company and others' No. 2 Carter, in the south part of Section 13, Block 19, swabbed and flowed 710 bbls. in 24 hours from pay at 2,515-17 feet. This is the farthest northeast producer in the pool and extends production one location north and east.

On north in the Bickley Pool, Independent Oil & Gas Co.'s No. 1 Smith, a northwest outpost well, appears to be good for 700 bbls. daily from pay at 2,511-17 feet. The well is in the southwestern part of Section 51, Block 18. During the first 20 hours it made 778 bbls. Since being placed on the pump it has never had a full 24-hour run because of shutdowns for engine repairs. McMan Oil & Gas Co.'s No. 1 Bickley, Section 50, extended production a couple of locations south when it swabbed and flowed 100 bbls. in nine hours from pay at 2,449-56 feet.

It is reported Phillips Petroleum Co. is planning to build a natural gasoline plant in this area and purchase gas from producers both in the Bickley and Tiner Pools. The gas from this area tested between 3½ and 4 gallons per 1,000 feet at this early stage of development.

Production of West Texas declined slightly due to the fact that Hendricks is running below its allowed quota. Yates was up as was the Roberts Pool in Howard County and the two new pools in Jones County. Church and Fields declined some as did Upton County production. Hendricks contributed most of the loss because a number of the leases cannot make their full quota of production.

Despite the fact that production had declined during the week covered by reports of crude movements in West Texas, runs to storage increased 2,556 bbls. in comparison to the report for the previous week. Pipe line companies moved less oil and tank car shipments declined about 1,000 bbls. Runs to West Texas refineries were off approximately 2,000 bbls.

Below are given comparative tables of West Texas crude movements for the two periods covered.

Pipe Line Runs

	Last period	Previous period
Gulf 10" line to coast	23,960	24,114
Humble two 8" lines to coast	40,545	39,952
Humble 10 and 12" lines to coast	51,443	50,720
Illinois 8" to coast	17,000	17,000
Magnolia 8" to coast	31,076	30,807
Pasotex 8" line to El Paso	7,015	7,693
Shell 10" line to Oklahoma	42,221	39,470
Total	213,260	209,756

Tank Car Shipments

Orient from McCamey	180	177
Southern Crude from McCamey	649	603
The Texas Co. from Cossett	1,074	510
Amer. Pet. Co. from Pyote	15,124	13,674
Independent from Pyote	4,103	4,281
Shell from Monahans	6,104	6,146
Skelly from Pecos	4,534	4,657
Southern Crude from Wickett	17,135	18,321
The Texas Co. from Monahans	6,813	6,206
Total	55,716	54,575

Runs to West Texas Refineries

Amarillo Prod. Co., Pyote	1,217	1,861
Blue Bonnett Ref. Co., Wickett, Tex.	6,325	4,997
Col-Tex Ref. Co., Colorado, Tex.	6,740	6,646
Humble O. & R. Co., McCamey, Tex.	10,133	9,438
Midland Ref. Co., Midland, Tex.	1,861	1,745
Tonkawa Ref. Co., Pyote, Tex.	3,764	3,770
Valley Ref. Co., Pyote, Tex.	3,926	3,781
Big Spring Ref. Co., Big Spring, Tex.	1,657	1,718
Total	35,623	33,956
Pipe line runs	213,260	209,756
Tank car shipments	55,716	54,575
Deliveries to refineries	35,623	33,956
Total disposition	304,599	298,291
Daily average production	328,127	324,375
Daily average to storage	23,528	26,084

ESTIMATED DAILY AVERAGE PRODUCTION WEST TEXAS
Week Ended November 10

County—	Wells	Bbls.
Crane County	268	39,906
Crockett County	49	2,737
Ector County	2	7
Fisher County	5	921
Glasscock County	17	729
Howard County	199	31,973
Jones County	49	4,164
Loving	7	263
Mitchell	141	2,486
Pecos	272	70,953

(Continued on Page 163)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended November 10

ANDREWS COUNTY

Company, farm and location—	Remarks—
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Drlg. 440 ft., red beds.

BORDEN COUNTY

Condor Oil Co.'s No. 1 E. A. Hall, 1,650 ft. S and W of NE cor. Sec. 5, Blk. 32, Twp. 3n. T.&P. Sur.	Top salt 1,235 ft.; drlg. 1,240 ft.
E. L. Doheny, Jr., No. 1 J. J. Koonsman, 330 ft. S and E of NW cor. Sec. 2, Blk. 2, T.&N.R.R. Sur.	Hole full water 290-360 ft.; shut down 3,210 ft.; hole full water 3,050-85 ft.
Texas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Location

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 S and 2,598 E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F.	Location
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100 Blk. 2, G.C.&S.F. Sur.	Shut down 1,145 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 1,079 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,710 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,062 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 500 ft.

COKE COUNTY

Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P.	Drlg. 650 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur. elev. 2,750 ft.	Drlg. 2,860 ft.
Louisiana O. & R. Co.'s No. 1 Powers, 745 ft. S and 2,310 ft. E of NW cor. Sec. 156, Blk. 2	Fishing 2,650 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Drlg. 1,350 ft.

(Continued on Page 117)

From an article in
The Oil and Gas Journal, September 20, 1928

"At present price levels, refiners seem to be satisfied with the going quotation on all major refinery products, with the exception of bunker "C." It is generally conceded this oil is being sold too cheaply, and refiners are making the best of a bad bargain by cracking as much gasoline as possible from their low gravity crudes, depending upon the gasoline and kerosene yields and selling prices to "carry" the fuel oil end of the business."

Refiners who operate the Dubbs Cracking Process have no fuel oil to "carry" By the non-residuum method, cheap fuel oils are cracked into maximum yields of gasoline with only coke as a by-product

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Big Well Completed West of Maud Area

Producer From Misener Sand and 1 Foot in Hunton Lime Starts Off at 180 Bbls. Hourly. Mission Section Active

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

In a week which furnished very little important news from the fields, the daily average production of Oklahoma showed a decline of 5,000 bbls. for the week. The most of this decline was caused by the decreased output of the Greater Seminole area, which dropped 3,000 bbls. per day.

The general situation in Oklahoma shows little change, and light oil is still in good demand, with some premiums being reported for crude of exceptional merits. The feeling that an increase in crude oil prices is imminent still prevails and is strengthened by the demand for good crude. It seems a certainty that the dawn of the new year will witness an improved price situation in the Oklahoma fields.

The completion of five addtiional wells in the Greater Seminole area failed to check the drop of that territory, and the St. Louis Pool offered no new wells. The only important well in the St. Louis Pool is The Texas Company and Fuhrman Petroleum Co.'s No. 1 Cherry, SW cor. NW NW Section 25-7-4, which was reported last week as flowing 100 bbls. an hour from the Wilcox sand. This rate of flow continued during the week, and the bailer is still in the hole. The well has not been deepened, and according to reports will not be deepened for the present. This well is now believed to be located on a small structure which will not connect with the main body of production in the pool, and which will very likely run southwest from the Cherry well.

The main body of production in the St. Louis Pool was inactive last week with no important completions, and nothing but the increase of water in the most of the wells to be reported.

Good Well West of Maud

The most important well of the week was just west of the Maud area of Township 8-5. There have been a number of wells completed in this area, the majority of them producing from either the Hunton lime or the Misener sand, and on the east side of Township 8-4 the Amerada Petroleum Corp. and the Laurel Oil & Gas Co. this week drilled in one of the best wells which either of these formations have offered. The new well is No. 1 Hallum, NE cor. SE SE Section 1-8-4, which is producing from the Misener sand found from 4,133-44 feet, with the last foot partly in the Hunton lime. This well on a five-hour open flow test made an average of 180 bbls. an hour. It is now flowing slightly better than 100 bbls. an hour against a back pressure of 340 pounds.

The Amerada-Laurel well is just one-quarter mile south and slightly east of the Amerada Petroleum Corp.'s No. 1 Gravel in Section 1-8-4, which was completed in the Hunton lime some months ago. The region is reported to be on a seismograph structure which has been heavily played in both the matter of leases and royalties. The initial output of the Hallum well is much better than the initial of the remainder of the wells which were completed in the Hunton or Misener horizons in this vicinity, and for that reason the new well is regarded as extremely important.

The Mission area on the west side of Township 8-6 is interesting and November 15 having been established as the starting date for new wells in this region, approximately 70 wells will be spudded on that date with February 15, 1929, as the official date upon which these wells may be completed. The program of starting two wells to each 40 acres of leasehold has been adopted, and the operations in Mission will be followed on that plan. It will be well into the spring demand for crude therefore before any big output from the Mission region will be realized.

There will be some additional activity in the Maud territory around Township 8-5, as the general feeling grows that some modification of the shutdown plan which limits drilling in this area will be adopted. There are some short term leases in the Maud district which necessitate drilling, as it seems likely that a series of test wells will be drilled.

An important wildcat well which had a slight showing this week is the Magnolia Petroleum Co.'s No. 1 Germany, SE cor. NW Section 30-9-5. This well touched the Hunton lime at 4,159 feet, and has 2,000 feet of fluid in the hole, of which 250 feet is oil and the remainder mud and water.

Another dry hole south of the Little River Pool in the Indian Territory Illuminating Oil Co.'s No. 1 Lawyer, SE cor. NW Section 26-8-6, which found the Wilcox sand exceptionally low with a hole full of water. The sand in this well was found 5,043-55 feet, and the well will be plugged.

In Creek County a well which three weeks ago threatened to open a new Wilcox sand pool has diminished in importance. The Houston Oil Co., Silurian Oil Co. and others' No. 1 Clifford, NE cor. NW Section 7-19-7, which started flowing 580 bbls. a day from the Wilcox sand at 3,112-18 feet, is now down to 75 bbls. of oil per day by natural flow. The well will be swabbed in an effort to obtain a greater production. The rapid drop of the well is disappointing.

Carter County

Schermerhorn and others' rig is up for No. 7 Crockett, NW cor. SE NE, Section 22-1s-3w. Magnolia Petroleum Co.'s No. 1 Wallace, NE cor. SW NE, Section 22-1s-3w, has been completed for 83 bbls. in sand at 2,700-05 feet.

Creek County

Kennedy & Horner's No. 2 Snow, SE cor. Section 15-18-11, is spudding. Henry & Avers' No. 1 Harris, SW cor. SE SE, Section 12-17-10, is an old well drilling deeper at 2,200 feet. Fox & Irelan moved a machine to the location for No. 2 Goody, C NW NE, Section 25-17-10. Anderson & Prichard built the rig for No. 1 Stuart, NE cor. SW NE, Section 24-16-10. C. J. Burton and others made location for No. 1 Schmidt, NE cor. NW SW, Section 25-15-9. H. C. Detrick and others moved the rig to the location for No. 1 Kimble, NE cor. Section 25-14-9.

Roxana Petroleum Corp.'s No. 8 Sewell, NW cor. SE NE, Section 18-19-9, has been completed for 30 bbls. in Wilcox sand at 2,877-91 feet. W. E. Holmes and others' No. 1 Halsey, NW cor. SE, Section 28-19-9, is dry and abandoned at 2,780 feet in Wilcox sand. Franchot and Mid-Continent Petroleum Corp.'s No. 1 Garrett, NW cor. SW, Section 16-16-10, is dry and abandoned in Turkey Mountain sand at 3,550-3,754 feet.

Grady County

Oklahoma Gas Utilities Corp. made location for No. 5 Chandler, SE cor. NE SE, Section 27-5-8w. Commerce Development Co.'s No. 1 Blunt, C NE NW, Section 4-3-7w, has been abandoned at 2,701 feet.

Garvin County

Magnolia Petroleum Co. has the rig material on the location for No. 1 H. Derdeyn, NE cor. SE SE, Section 18-1-3w.

Jefferson County

Bridwell and others' No. 1 Spring "B," NE cor. NW SE, Section 25-6s-6w, is rigging up rotary tools.

Kay County

Nehr and others' No. 2 White, C NE SW, Section 31-28-1, is drilling at 400 feet, testing for shallow gas. D. J. Wilson is moving a machine in for No. 1 Meuret, C SW NE, Section 14-27-1, to make a shallow gas test. Mummert Drilling Co. and others' No. 1 Weedin, C SW SW, Section 34-27-3, is rigging up for a gas test.

Harold Petroleum Co.'s No. 7 Case, NE cor. SW SW, Section 4-27-1w, has been completed for 80 bbls. in Wilcox sand at 3,442-51 feet. Ingram & Wilson's No. 1 Myer, C SE NW, Section 14-27-1, has been completed for 2,215,000 feet of gas in sand at 670-73 feet.

Kiowa County

Alexander and others moved a spudder to the location for No. 1 Kinkead, NW cor. SW NW, Section 20-6-16w.

Logan County

Roxana Petroleum Corp. is digging cellar and ponds and erecting the rig for No. 3 Rouse "B," SE cor. NE NE, Section 19-19-4w, Roxana Pool. J. E. Crosbie and others' No. 4 Shaffer, SW cor. NW NW, Section 20-19-4w, is a rig under construction. Roxana Petroleum Corp. is erecting the rig for No. 5 McCully, NE cor. SE, Section 30-19-4w. Blackwell Oil & Gas Co.'s No. 1 Quigley, SE cor. NW SW, Section 21-18-4w, Crescent-Lovell area, has been completed for 23,000,000 feet of gas in Tonkawa sand at 3,887-3,905 feet.

Okfuskee County

C. L. McMahon and others moved the rig out for No. 1 Fixico, NE cor. NW SE, Section 29-12-10. W. L. Umburn has the rig up for No. 1 Jackson, CSL SW SW, Section 35-11-11. Wilcox Oil & Gas Co.'s No. 1 Mortin, SE cor. Section 22-13-10, is dry and abandoned at 3,495 feet in Wilcox sand topped at 3,494 feet. Pure Oil Co.'s No. 1 Jimboy, C NW NW, Section 25-11-10, made 52 bbls. from Deaner sand at 3,060-73 feet. W. L. Umburn's No. 3 Tiger, NE cor. SE NW, Section 2-10-11, has been completed for 50 bbls. in the Salt sand 1,770-93 feet. Twin State Oil Co.'s No. 1 D. Fier, NE cor. NW NE, Section 11-10-11, is dry and abandoned at 2,119 feet.

Pawnee County

Peerless Oil Co. and others' rig is up for No. 1 Nobles, NW cor. NE NE, Section 20-20-9. Swift and others' No. 1 Higbee, CSL SW NE, Section 33-20-9, has been completed for 250,000 feet of gas in sand at 2,272-97 feet. No. 2 Pounder, NE cor. SW SE NW, Section 33-20-9, is making 2,500,000 feet of gas from a stray sand at 1,404-91 feet.

Osage County

Indian Territory Illuminating Oil Co. made location for No. 403, SW cor. NW NE, Section 24-26-11. Phillips Petroleum Co.'s No. 16, NE cor. SW SE, Section 21-25-12, is drilling at 310 feet. Clint Moore estate's No. 18, SW cor. NW SW, Section 9-21-9, made 30 bbls. from sand at 285-315 feet. No. 5, NW cor. Section 16-21-9, is spudding.

Indian Territory Illuminating Oil Co.'s No. 401, NW cor. SE SE, Section 22-27-11, has been completed for 3,500,000 feet of gas in sand at 1,875-1,906 feet. L. G. Stanley and others' No. 1, NW cor. SE Section 5-21-9, is dry and abandoned at 1,623 feet. Clint Moore estate's No. 13

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

LATIMER COUNTY

Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18 ..... Shut down 2,800 ft.

GRANT COUNTY

J. V. Bailey and others' No. 1 Maddox, C SE Sec. 18-27-5w ..... Dry and abandoned 5,058 ft.

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w ..... Shut down 5,640 ft.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-25-22w ..... Shut down 4,130 ft.

KAY COUNTY

Geo. L. Miller and others' No. 1 Home, NW cor. SE Sec. 11-24-3 ..... Dry and abandoned at 4,031 ft.

Lario Oil Co.'s No. 1 McKay, NW NE Sec. 14-29-1 ..... Underreaming 2,750 ft.

Tonkawa Development Co.'s No. 1 McDaniels, SE cor. SE Sec. 15-25-1w ..... Wilcox sand 4,915-4,926; dry and abandoned.

WOODWARD COUNTY

Otstot Development Co.'s No. 1 Simmons, SE cor. SE Sec. 32-24-17w ..... Shut down for pipe 1,490 ft.

Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w ..... Rig blown down 3,025 ft.

Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w ..... Shut down 500 ft.

Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Underreaming 1,810 ft.

Farrond and others' No. 1 Johnson, SW cor. SW Sec. 1-23-17w ..... Underreaming 1,560 ft.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w ..... Shut down 4,755 ft.

Marland and Barnsdall's No. 1 Looman, NE SE Sec. 9-20-4w ..... Shut down 5,735 ft.

Marland Oil Co.'s No. 1 Miller, SW cor. SW Sec. 12-20-4w. Shut down at 4,575 ft. waiting on test Sec. 9-20-4w.

NOBLE COUNTY

Alco Royalty Co.'s No. 1 Waltermire, SE cor. NW Sec. 33-21-1w ..... Spudded.

Marland Oil Co.'s No. 1 Kidd, NW cor. SW Sec. 32-20-1w ..... Shut down at 5,290 ft.; plugging back to show oil 1,836 ft.

KINGFISHER COUNTY

Galt-Brown Oil Co.'s No. 1 Wolff, NW SE Sec. 6-16-7w .. Completed contract 4,515 ft.; shut down.

McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w ..... Drlg. 4,705 ft.

LOGAN COUNTY

Champlin Refining Co.'s No. 1 Clark, SE cor. SW Sec. 8-19-4w ..... Dry and abandoned 6,726 ft.

Margay Oil Co.'s No. 1 Cole, SE cor. SW NE Sec. 24-18-5w ..... Rig.

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w. Drlg. 5,060 ft.

J. L. Donahoe's No. 2 fee, SW cor. NW SE Sec. 21-18-2w. Drlg. 5,195 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w ..... Spudded and shut down; renewing leases.

W. J. Donnelly, trustee's, No. 1 Dickens, NE cor. SE Sec. 26-15-12w ..... Drlg. 3,950 ft.

Ragland and others' No. 1 Unknown, C NW SW Sec. 13-19-10w ..... Rig.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3 ..... Location.

(Continued on Page 127)

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Salt Lake City, Utah.

MORTON McI. DUKEHART & CO.
Baltimore, Md.

REEVES & SKINNER MACHINERY CO.
St. Louis, Mo.

NW cor. SW SW SW, Section 9-21-9, made 30 bbls. from sand at 295-319 feet. No. 14, NE cor. SW SW SW, Section 9-21-9, made a 40-bbl. well from sand at 243-54 feet. No. 16, NW cor. SW NW, Section 9-21-9, was completed in sand at 281-99 feet for 75 bbls. No. 4, NE cor. NW NW NW, Section 16-21-9, made 80 bbls. from sand at 218-41 feet.

Payne County

Gardner Petroleum Co. and others' rig is up for No. 1 Barnes, C SW NW, Section 13-19-1w. Magnolia Petroleum Co.'s No. 3 Green, NE cor. SE NW, Section 20-19-6, an old well, is rigging up to deepen from 3,067 feet.

Stephens County

Smith-Law Oil Co. has erected the rig for No. 2 Malechi, SE cor. SW NE, Section 31-1-8w. Amerada Petroleum Corp. has built the rig for No. 4 Hanson, NW cor. SW, Section 12-1s-4w. Magnolia Petroleum Co. has the rig up for No. 5 Bell, NW cor. SE SW, Section 13-1s-4w. Schermerhorn Oil Co. and others' No. 5 Shields, SW cor. NE SW, Section 13-1s-4w, is a rig. Moore and others' No. 2 Moore, CNL NW SW, Section 2-2s-10w, is drilling at 2,100 feet.

Magnolia Petroleum Co.'s No. 1 Stewart, SE cor. SW SE, Section 34-2-5w, has been abandoned at 4,220 feet. No. 5 Funk, SW cor. NE NW, Section 30-1-8w, is dry and abandoned at 2,295 feet. Fossett and others' No. 2 Adams, NE cor. NW SW, Section 19-1s-8w, has been completed for 3,250,000 feet of gas in sand at 2,020-2,371 feet.

Medlin and others' No. 4 Simpson, NW cor. NE SW SE, Section 34-1s-8w, made 15 bbls. from sand at 1,664-70 feet. Heydrick and others' No. 2 Pool, NE cor. SW SW SW, Section 35 1s-8w, is a dry hole at 2,225 feet. Max Westheimer's No. 1 H. Martin, SE cor. Section 11-1s-4w, has been completed for 50 bbls. in sands at 2,862-3,057 feet. Pace and others' No. 7 Bristowe "A," SW cor. NW NE NW, Section 18-2s-7w, made a 6-bbl. well in sand at 1,500 feet. Magnolia Petroleum Co.'s No. 14 Wilson, NW cor. SW SW SW, Section 1-2s-5w, has been abandoned at 1,445 feet. Mudge Oil Co.'s No. 7 Cobb "A," NE cor. SW NE, Section 1-2s-5w, is a 10-bbl. well in sand at 697-723 feet.

Tulsa County

Kennedy & Horner's No. 1 Bruner, NW cor. SW NE, Section 9-18-13, is dry and abandoned at 2,210 feet.

Muskogee County

Babcock Brothers moved a machine to the location for No. 4 N. Barnett, SE cor. NW NE, Section 8-15-15. P. O. Miller's No. 1 Jackson, SE cor. NE NW, Section 8-13-16, is a machine rigging up. Babcock Brothers' No. 3 N. Barnett, CEL W half NE, Section 8-15-15, has been completed for 9,000,000 feet of gas in sand at 1,058-64 feet. M. S. Musselem's No. 1 Cobb, SE cor. NW NE, Section 5-13-19, is dry and abandoned at 1,500 feet.

Okmulgee County

F. Murta and others moved a machine to the location for No. 1 Doneghy, NW cor. NE, Section 8-15-12. Curtis Oil Co.'s No. 2 Replogie, SE cor. NW NE, Section 12-15-12, is a machine. J. H. Rebold Oil Co.'s No. 6 Backler NE cor. NW NE, Section 22-13-12, is rigging up to deepen from 2,113 feet. Kirkland & Son's No. 1 Doyle, C SW NE, Section 19-15-13, is drilling at 1,800 feet. No. 3 Phillips, SE cor. NW, Section 19-15-13, is drilling at 500 feet. C. Peterson and others' No. 6 Ware, NW cor. SW SW, Section 9-15-14, is a machine. Miller & Moore's No. 4 Rowe, SW cor. NW NE, Section 10-15-14, is rigging up.

F. Cusick and others' No. 4 Rowe, NW cor. SE NW, Section 21-16-14, is dry and abandoned at 2,476 feet. Kirkland & Son's No. 1 Grayson, C SE SW, Section 18-15-13, is dry and abandoned at 2,687 feet. No. 2 Phillips, SW cor. SE NW, Section 19-15-13, has been completed in sand at 1,535-1,643 feet. Papoose Oil Co.'s No. 20 Osborn, NW cor. SE SE, Section 21-15-14, made a 5-bbl. well in sand at 2,155-73 feet.

The Texas Company's No. 4 Hayes, NE cor. NW, Section 25-15-14, was completed for 50 bbls. in sand at 1,560-79 feet. J. H. Rebold Oil Co.'s No. 7 Backler, CNL NW NE, Section 22-13-12, made 50 bbls. from Wilcox sand at 2,878-96 feet. A. G. Hazlett's No. 3 Stevens, CSL SE SW, Section 28-13-13, was completed for 10,000,000 feet of gas in sand at 1,355-1,530 feet. Troutt Drilling Co.'s No. 10 Doyle, C NW NW, Section 28-13-14, made 60 bbls. from sand at 1,570-94 feet. Apache Petroleum Co.'s No. 1 Monday, NW cor. SE NE, Section 1-12-12, is dry and abandoned at 3,370 feet.

Pittsburg County

Quinton Spelter Co. has the rig up for No. 1 Hughes, NW cor. SE, Section 23-7-17.

Sequoyah County

Buffington Oil & Gas Co. has the rig up for No. 1 Melcher, C SW NW, Section 31-12-24.

Wagoner County

Elk Drilling Co. has a machine on the location for No. 3 Childers, SW cor. NE SE, Section 29-18-17.

Peterson & Young moved a machine to the location for No. 3 Jameson, NE cor. SW SW, Section 23-16-16. J. E. Martin's No. 1-A Orcutt, NW cor. NE, Section 35-18-15, has bene completed for 7 bbls. in sand at 971-1,013 feet. Peterson & Young's No. 1 Mitchell, CWL NW SE, Section 23-16-16, made 1,500,000 feet of gas from sand at 970-80 feet.

Seminole County

Gypsy Oil Co. has the rig on the location for No. 16 Sango, NE cor. SW NE, Section 1-9-5, Earlsboro Pool. T. B. Slick is building the rig for No. 5 James, SW cor. SE SW, Section 6-9-6. Magnolia Petroleum Co. made location for No. 1 James, NE cor. NW SE, Section 18-9-6. Gypsy Oil Co. is erecting the rig for No. 1 Coker, NE cor. SE, Section 10-8-5, Mission Pool. Tidal Oil Co. has the cellar dug for No. 2 Nellie, NE cor. SE SE, Section 12-8-5. Gypsy Oil Co. has dug cellar for No. 1 Fife, NE cor. SW NW, Section 14-8-5, Maud area. Marland Oil Co. moved the rig out for No. 2 Maines, SW cor. SE SW, Section 7-8-6. Location was made for No. 3 Maines, NW cor. SE SW, Section 7-8-6, Mission Pool.

Carter Oil Co. and Denver Producing & Refining Co. made location for No. 1 Melissa, NW cor. Section 9-8-6. McCulloch Oil Co. made location for No. 1 Johnson, SE cor. NW, Section 20-8-7. Champlin Oil & Refining Co. is building the rig for No. 1 McGiesey, SE cor. SW, Section 5-7-6. Wigton & Long's No. 2 Jefferson, SW cor. NW NW NE, Section 31-7-6, is rigging up. Sinclair Oil & Gas Co. has the rig on the location for No. 2 Nakotche, SE cor. NW SW, Section 18-5-8, Allen Pool. Indian Territory Illuminating Oil Co. moved the rig to the location for No. 1 Fleet, SE cor. NW, Section 19-5-8.

Mid-Kansas Oil Co.'s No. 1 Moore, NW cor. SW SE, Section 7-8-6, Mission Pool, made 35 bbls. from Wilcox sand at 4,545-47 feet. W. B. Pine's No. 6 Hoyecha, NE cor. SE SE, Section 26-8-6, North Little River, was completed for 900 bbls. in Wilcox sand at 4,120-25 feet. Barnsdall Oil Co.'s No. 2 Walker, NW cor. NE NW, Section 4-7-6, Little River, is dry and abandoned at 4,703 feet. Carter Oil Co.'s No. 4 C. Harjo, NW cor. SE SW, Section 11-7-6, made 900 bbls. from Wilcox sand at 4,344-51 feet.

Magnolia Petroleum Co.'s No. 3 Denby, NW cor. SE NW, Section 11-7-6, was completed for 656 bbls. in Wilcox sand at 4,276-97 feet. Empire Oil & Refining Co.'s No. 1 Charty, NW cor. SE NW, Section 24-7-6, made 750 bbls. from Wilcox sand at 4,882-85 feet. R. H. Smith's No. 1 Barkus, NE cor. SW, Section 15-7-7, has been abandoned at 3,546 feet. Shaffer Oil & Refining Co.'s No. 1 Carolina, SE cor. SW NE, Section 4-6-7, is dry and abandoned at 4,875 feet. Sinclair Oil & Gas Co.'s No. 2 Peter, NE cor. NW NW, Section 18-5-8, made 150 bbls. from Cromwell sand at 2,687-2,712 feet.

Hughes County

T. B. Slick's No. 1 Larney, NW cor. SE, Section 17-6-8, is dry and abandoned at 4,650 feet. Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW, Section 21-6-8, has been abandoned at 3,320 feet.

Pontotoc County

Homaokla Oil Co.'s No. 2 Berry, NE cor. SE, Section 19-5-8, Allen Pool,

(Continued on Page 106)

MARION COUNTY WILDCAT GETS OIL SPRAYING 5 BBLS. AN HOUR

By J. L. Dwyer

Staff Correspondent, Kansas Fields.

The deepening of an important wildcat well, and a failure in the Sedgwick County territory were the best bits of news in Kansas last week. Courtney B. Davis and others' No. 1 Rample, SW cor. NW Section 7-19-3, a wildcat well near the town of Hillsboro in Marion County, was drilled 10 feet deeper from a total depth of 2,542 feet and began spraying 5 bbls. of oil per hour. The well is now making 3,500,000 feet of gas and the 5 bbls. of oil against a back pressure of 400 pounds.

The finding of oil in this wildcat well is one of the most important events of this part of the State, and may be the forerunner of considerable activity.

In the Sedgwick County play, Allison & Fitzwilliams' No. 1 Gesell, NE cor. NW NE Section 24-26-1w, is a failure in the Wilcox sand found 3,432-40 feet, and the well is drilling with a hole full of water at 3,450 feet. This well is 1¼ miles southwest of the Gypsy Oil Co. Marland Production Co. and Bu-Vi-Bar Petroleum Co.'s No. 1 Wright in Section 12-26-1w, which is still flowing 1,500 bbls. daily. There should be another well in this region completed during the next 10 days.

Butler County

Empire Oil & Refining Co. made location for No. 4-A Brandenberger, SW cor. NE NE, Section 22-27-5. The rig is on the ground for No. 4-B Hutchinson, SW cor. NE, Section 27-27-5. Dixie Oil Co. is erecting the rig for No. 5 Marshall, SE cor. SW NW, Section 10-27-6. Rosenthall and others' No. 3 Marshall, NW cor. SE NW, Section 10-27-6, is a rig under construction.

Branson and others' No. 2 Beadles, SW cor. NW SE, Section 5-27-6, has been completed for 50 bbls. in sand at 2,715-25 feet. Dixie Oil Co.'s No. 4 Marshall, NE cor. SW NW, Section 10-27-6, is making 175 bbls. from sand at 3,108-26 feet. Davidson and others' No. 1 Senvish, SW cor. NE NW, Section 5-28-7, is dry and abandoned at 2,800 feet.

Elk County

Croft & Hunt's No. 1 Townsite, SE cor. SW SW, Section 10-31-10, is rigging up. Denton Brothers made location for No. 2 Elstun, NE cor. NW NW, Section 15-31-10. Peters Petroleum Co. staked location for No. 1 McSpadden, SW cor. SE SE, Section 18-31-10.

Croft & Hunt's No. 1 Moline Townsite, Block 47, Lot 2, SE cor. SW SW, Section 10-31-10, made 100 bbls. from sand at 1,990-2,020 feet. S. H. Litteral's No. 1 Moline Townsite, Block 43, Lot 6, NE cor. SW SW, Section 10-31-10, was completed for 100 bbls. in sand at 1,925-2,011 feet. Sonner Gas Co.'s No. 1 Moline Townsite, Lot 4, Block 42, NE cor. SW SW, Section 10-31-10, made a 50-bbl. well in sand at 1,986-2,024 feet. Blaudell and others' No. 2 Reetig, NE cor. Section 29-31-10, was deepened to 2,733 feet and is making 5 bbls. from sand at 2,127-33 feet.

Greenwood County

Roxana Petroleum Corp. and Swartz' No. 1-B Hood, SW cor. SE SE, Section

(Continued on Page 146)

KANSAS WILDCATS

BARBER COUNTY

Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w..Shut down 4,715 ft.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w ..... Underreaming 4,066 ft.
Skelly Oil Co. et al's No. 1 Winter, C E half Sec. 17-31-12w ..... Dry and abandoned 4,530 ft.

BARTON COUNTY

Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12 20-13w ..... Shut down 3,948 ft.
McJilton et al's No. 1 Evenston, SE cor. NW Sec. 34-17-11w ..... Rig.
Mid-West Exploration Co.'s No. 1 Karst, SW cor. SW Sec. 11-16-15w ..... Fishing 2,075 ft.

BUTLER COUNTY

O. H. Fleming et al's No. 1 Brainard, NE cor. NW Sec. 22-24-3 ..... Drlg. 3,122 ft.
LaRobb et al's No. 1 Bronsenger, NE cor. SW Sec. 24-27-3 ..... Rig.
Swartz et al's No. 2 Randall, NW cor. NE NW Sec. 22-24-4 ..... Casing 905 ft.

CHASE COUNTY

Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7 ..... Shut down 3,162 ft.

COWLEY COUNTY

Jones & Hall's No. 1 Shapland, NE cor. NW SE Sec. 20-30-6 ..... Drlg. 3,014 ft.
Roth & Faurot's No. 1 Ridding, SE cor. NW Sec. 31-32-6 ..... Drlg 1,920 ft.
Roxana Pet. Corp.'s No. 1 Galley, NE cor. NW SW Sec. 18-35-3 ..... Drlg. 2,150 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4 ..... Fishing 900 ft.
Prairie Oil & Gas Co.'s No. 1 Shane, SE cor. NW Sec. 13-33-3 ..... Drlg. 3,620 ft.
Empire-Marland-Twin States' No. 1 Feaster, NW cor. NE Sec. 36-32-5 ..... Drlg. 1,445 ft.
E. B. Shawver's No. 1 Cook, NE cor. NE Sec. 20-30-6.... Drlg. 2,820 ft.
Roth & Faurot's No. 1 Ehmke, NE cor. NW Sec. 14-32-3.. Dry and abandoned 3,466 ft.
Crow & White's No. 1 Powers, C NW NE Sec. 9-32-5.... Sand 714-734 ft., 1,000,000 ft. gas
Slick & Martin's No. 1 Aspaugh, SW cor. NE Sec. 27-31-5 ..... Drlg. 2,350 ft.
J. B. Markey's No. 1 Tatum, SE cor. SW Sec. 11-31-6.... Shut down 600 ft.
Jones & Hall's No. 1 Shapland, SE cor. NW SE Sec. 20-30-6 ..... Shut down 3,396 ft.

DICKINSON COUNTY

Empire G. & F. Co.'s No. 1 Duffy, NE cor. SW SE, Sec. 3-12-3 ..... Dry and abandoned 2,982 ft.

ELLIS COUNTY

Derby Oil Co.'s No. 1 Weigel, C NW Sec. 25-12-17w .... Dry and abandoned 4,068 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w ..... Shut down 1,100 ft.
Transcontinental Oil Co.'s No. 1 Boetcher, NW cor. SE SW Sec. 21-13-19w ..... Drlg. 3,080 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w ..... Rig.
Labette Oil Co.'s No. 1 Urban, NE cor. NW NW Sec. 19-15-16w ..... Drlg. 1,850 ft.
James A. Brouk et al's No. 1 Gorham estate, C SE SE Sec. 35-15-16w ..... Spudded and shut down.
Derby Oil Co.-Empire Oil & Ref. Co.'s No. 1 Krause NW cor. SW SW Sec. 17-14-19w ..... Shut down 3,100 ft.
Phillips Pet. Co.'s No. 1 Brull, C NW Sec. 34-14-17w .... Spudded.
Moncrief et al's No. 1 Johnson, SW cor. NE Sec. 9-13-19w ..... Rig.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w ..... Spudded and shut down.
Empire Oil & Ref. Co.'s No. 1 Wann, NE cor. NE Sec. 31-12-19w ..... Drlg. 2,670 ft.
Mid-West Exploration Co.'s No. 36 Furthmer, SE cor. SE Sec. 25-12-16w ..... Spudded.
Phillips Pet. Co.'s No. 1 Shultz, C NE Sec. 5-12-17w ..... Drlg. 3,510 ft.
Mid-West Exp. Co.'s No. 1 Austin, NE cor. NE Sec. 36-12-16w ..... Casing trouble 3,060 ft.
Marland Oil Co.'s No. 1 Wine, SW cor. SW SE Sec. 27-11-19w ..... Drlg. 1,500 ft.
Stearns & Streeter's No. 1 Plummer, NW cor. SE Sec. 2-11-17w ..... Oswalt lime 3,034-39; 60 bbls. day.
T. B. Slick, Inc.'s No. 1 Craig, C NW NE Sec. 8-11-16w... Drlg. 2,800 ft.

(Continued on Page 128)

Halliburton service had its inception nearly ten years ago and the demand for its service has constantly increased since that time notwithstanding the fact that it had no patent protection for nearly two years. A patent that does not benefit the public to the same extent that it does the owner will not contribute to the building of a vast organization. The organizations that owe their existence to the Perkins Patent will be serving the oil producer long after the Perkins Patent has expired.

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Deep Gas Horizon in Champagnolle

Two Big Wells in Eastern Extension and Southeast of Deep Sand Area. Pine Island Production in Supposed Barren District

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Nov. 10.—Several factors combined to bring Champagnolle to the front of activities in the Shreveport division during the past week, sharing that position with two wells in Pine Island district of Caddo which may open, in one case a new deep gas horizon and in the other production in an area hitherto regarded as barren.

Of most importance to Champagnolle, because of its bearing on future production of that tricky and spotted field, is the lifting of the ban on air and gas lift installations. Next is the probability of two gas wells of large proportions in the second sand, one in the new eastern extension and the other in the southeast corner of the original deep sand area, and finally the apparent failure, at this time, of a well offsetting another completed November 9 as a 500-bbl. producer in the eastern extension.

Early in the week the Arkansas Conservation Department, following a second hearing with Champagnolle operators on the question of continuing or lifting the ban on air and gas lift on wells producing from the second sand, imposed six months ago when Champagnolle gave signs of production much larger than it has realized, voted without opposition to remove the restriction. To what extent this will increase the field's production and how many producers will go to the expense of making such installations remains to be seen. At present 95 wells are producing 11,900 bbls. per day, an average of 125 bbls. each, and Lion Oil Refining Co. is the only operator insisting on removal of the ban.

The restriction removed, Lion is expected to proceed at once with installation of the lift on most, if not all, its wells. To what extent other operators will follow its lead depends almost entirely upon the results it obtains, as there is no inclination to rush headlong into a program of equipping their wells with the lift unless the Lion's experiment proves that the ends will justify the expensive means. In a previous hearing on a request for permit to install air lift, considerable opposition was exhibited, chiefly on the assumption that the results which might be obtained would not warrant the expense, particularly in the case of the smaller operators or owners of limited acreage and that installation of the lift on one lease would necessitate the owners of the offsets doing likewise, whether or not they are so inclined or able without increasing their liabilities.

Good Gassers

Early in the week E. M. Jones' No. 1 Sample in the NW cor. N half SE NW, Section 7-17-13, in which Atlantic Oil Producing Co. has a half interest, made a drill stem test at 3,196 feet that indicated a 40,000,000-foot dry gasser. Six and five-eighths inch casing was cemented at 3,142 feet and drilling in is scheduled for November 14. While this was happening Ohio Oil Co. was making a drill stem test on No. 1 Ward in the NW cor. NW SW, Section 14-17-14, in the southeast corner of the original deep-sand area and 2½ miles southwest of the Jones well, which showed for 10,000,000 feet of dry gas from 3,015-20 feet. Casing was set at 3,013 feet and test is due about the same time as the Jones-Atlantic. And while these two wells were making their shows, J. W. Olvey's No. 1 Sample, a south offset to the Jones well, was testing dry at 3,058-64 feet. At 3,217-21 feet it had a small show of gas and oil and at 3,226 feet it made a salt water test with a smaller show of gas and oil and is going deeper.

Similarly, the Jones well was dry at 3,000-30 feet and the Ohio's tested salt water in the Crain, shallow, sand at 2,812-20 feet. On the other hand, Marine Oil Co.'s No. 3 Sample in the SW cor. NE NW, Section 7-17-13, offsetting the Jones well on the north, was completed November 9 flowing 500 bbls. of pipe line oil from 10 feet of sand, total depth 3,065 feet. Here is a combination of dry hole, gasser and producer within a distance of 1,200 feet and at the same approximate levels—though the Jones well is checked low by some—repeating the rule in the older area of the field. C. E. Murdock's No. 2 Union Sawmill in the SE cor. NW SW, Section 6-17-13, was abandoned on account of junked hole, total depth 1,300 feet.

Pine Island, Stray Sand

Pine Island's contribution to the interesting news of the week was developments in Magnolia Petroleum Co.'s No. 3 Levee Board in the NE cor. NW NE, Section 7-20-15, about 3 miles east of Oil City. Located on the south edge of an area about a mile square in which two or three wells were drilled several years ago and produced as well as several failures, this well is standing 1,100 feet in oil and 100 feet in salt water from 17 feet of sand, total depth 3,012 feet. Eight-inch casing is being run for a test of this sand which has not been identified and is at a level whence production has not been obtained before, though it has been found in sands above and below this depth elsewhere in the Caddo fields. Current opinion is that Magnolia has hit a stray sand of limited extent and unknown possibilities, such as Victor Wenzel and The Texas Company found on their leases farther north which were similarly situated as to previous development.

Dixie Oil Co.'s No. 92 Dillon in Section 13-21-15, the deepest in the State, showed signs of being a commercial gas well at 6,099 feet where the bottom is in 5 feet of lime and shell which yielded a considerable show of gas before it bridged. Drillers are going about knocking out the bridge with much circumspection as the hole is caving and there is danger of its being junked by a stuck drill stem. Once it is out and the hole clean 4½-inch casing will be set for a test. Six and one-quarter inch pipe was cemented at 4,344 feet. Meanwhile there are unconfirmed reports that the well built up 2,400 pounds of rock pressure.

Urania Blowout

An unlooked for development in the Urania Pool of LaSalle Parish was a gas blowout estimated at 10,000,000 feet of gas from around 700 feet in Randall and others' No. 1 Urania in Section 12-10-1e, after deepening from 630 feet where there was a small gas show. The crew was fishing for bailer when the blowout came, hoisting the bailer and drill stem out of the hole and some opinion is that the gas is coming from the higher level. After blowing for a day the hole bridged and surface fittings are being installed before knocking it out. It offsets a similar shallow blowout which created a crater well during the heighth of the Tullos boom by Spence & Rhodes who moved east 50 feet and drilled a salt water test.

The Oakland district of Union Parish which, though small as to area and production so far, has at last entered the list of commercially productive pools, four years after the discovery well was drilled. Lion Oil Refining Co. of El Dorado, and Carter & Wingfield, principal operators in the area, have completed a 4-inch line from the field to seven-car loading rack at Strong. And Lion is running the crude at the rate of about 200 bbls. per day. A report on distillation tests was not obtainable as the oil is being mixed with other crudes run by the Lion before going to the stills, but it was stated that it would come out about like Champagnolle crude. Oakland crude is about 34.7 gravity.

Two Freak Wells

Louisiana conservation department officials and Richland operators are at a loss for a satisfactory explanation of the freak behavior of two wells on Ouachita Natural Gas Co.'s Perdue lease in Section 6-15-6. Some time ago W. C. Fazzell's No. 1 Perdue in that section blew out around the casing and created numerous sand boils in Boeuf River 100 feet away and on the shore which later merged into a crater. Ouachita Natural Gas Co. was drilling No. 2 Perdue on the offset lease and had gone 600 feet when it shut down to drill a relief well between it and the crater. Reaching the shallow fresh water sand at around 400 feet which it expected to find full of gas as in the case of the first relief well drilled beside the Thompson crater on the Natural Gas & Fuel Corp. in Section 21-16-6, it bailed and got not a sign of gas. But the first thing it knew gas was blowing out of the well it had shut down and in which only 212 feet of 12½-inch surface pipe had been set.

Daily Average Runs

Reversing the position of last week and adding emphasis to it, Louisiana pools this week showed an increase of 1,230 bbls. in daily average pipe line runs, the total being 39,415 bbls., compared to 38,185 bbls. Correspondent Arkansas reported a decline of 100 bbls. runs averaging 83,180 bbls. An increase of 155 bbls. in runs from the Nevada County Field was the only gain reported from Arkansas. Increased runs in northern Louisiana were furnished by Caddo light 50 bbls., DeSoto-Red River 250 bbls., Bellevue 165 bbls., Cotton Valley light 40 bbls., Cotton Valley heavy 505 bbls. and Urania 245 bbls. Smackover light oil runs showed a very little change, a decrease of 15 bbls., but runs of the heavier grades were 175 bbls. less than last week. In connection with the Louann light oil runs, Louisiana Oil Refining Corp. corrected the report published in last week's review that it was paying a 10-cent premium on that grade, stating that it was paying no premium whatever.

Daily average runs from the several pools during the week were:

Louisiana

Caddo light	
Caddo heavy	
Homer	
Haynesville	
DeSoto-Red River	
Elm Grove	
Bellevue	
Cotton Valley light	
Cotton Valley heavy	
Urania	
Pleasant Hill	
Total	

Arkansas

El Dorado	
Smackover light	
Smackover heavy	
Stephens	
Nevada County	
Lisbon	
Champagnolle	
Bradley	
Total	
Both States	
Last week	
Increase	

NORTH LOUISIANA
Bossier Parish
Elm Grove and Sligo—Barrett & M

(Continued on Page 139)

NEW GAS AREA IN EAST TEXAS DISTRICT; SHELBY COUNTY WELL GOOD PRODUCER

By D. H. Bancroft

SHREVEPORT, La., Nov. 10.—East Texas wildcat operations attracted attention again this week when Gulf Refining Co.'s No. 1 Pickering on the P. W. Harvey Survey in Shelby County about 8 miles southwest of Logansport, La., blew in gauging 4,364,000 feet of dry gas from sandy lime at 3,243-47 feet, suggesting possibilities of a new deep gas reserve in East Texas. The blowout occurred while coming out with drill stem and will be killed to take another core. A few days ago the well blew out with an estimated 250,000 feet of gas while running core barrel in top of the producing formation.

Sharing major attention with this wildcat was the passing of two tests in northeastern Louisiana and a third in Catahoula Parish farther south. Palmer Corp., which has been trying to sidetrack a stuck drill stem after a fishing job, failed to retrieve it, has abandoned No. 1 Hamley in Section 27-20-11, as a junked hole, total depth 2,923 feet. This was to be another test for the gas uncovered by its No. 1 O'Brien in Section 7-19-11, about 3 miles southwest, which gauged 51,000,000 feet from 5 feet of sand, total depth 2,354 feet. Six and five-eighths inch casing was cemented on top of the gas rock at 2,477 feet, 85 feet lower than the formation was found in the O'Brien well, and the resulting test was salt water at 2,480 feet.

In Madison Parish, Ruston Drilling Co.'s No. 1 Sondheimer in Section 24-18-11, about 12 miles south of the Palmer well, was abandoned at 3,150 feet as a dry hole without testing. The Texas Company's No. 1 Tensas in Section 4-10-6 was abandoned as a dry hole at 3,500 feet, contract depth, without having encountered any showings warranting a test.

Oakland District

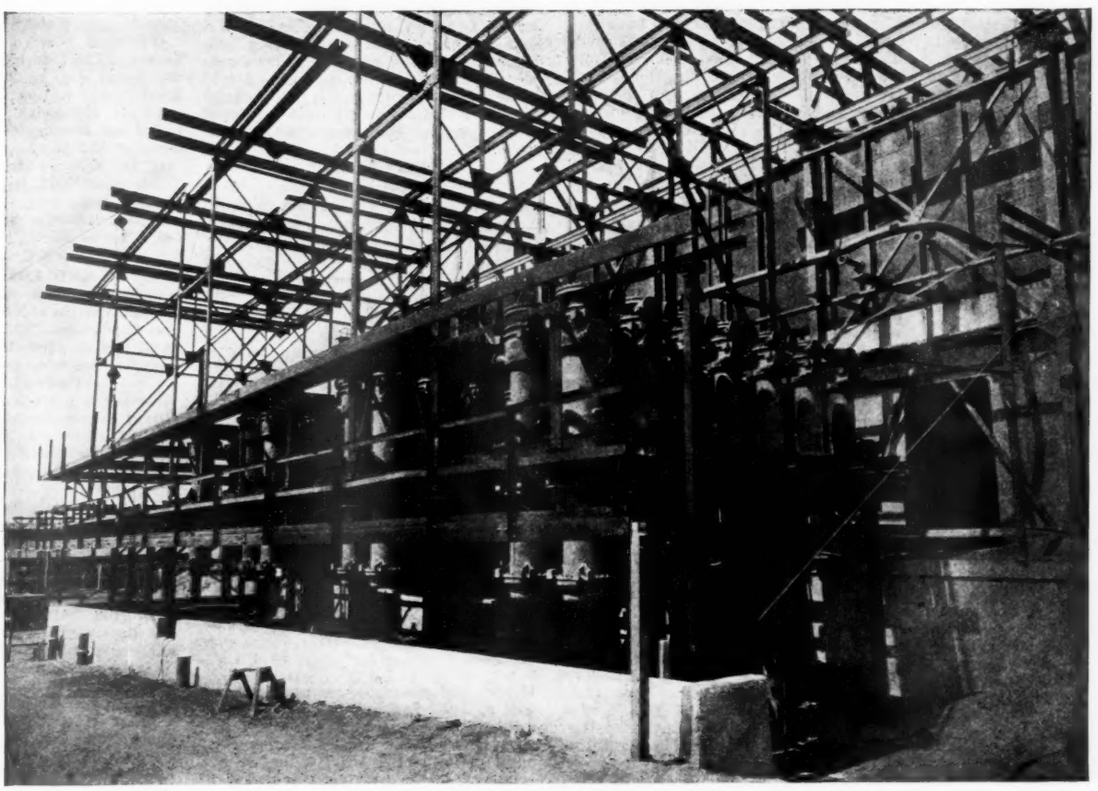
Carter & Wingfield abandoned location for No. 3-A Clark in Section 7-23-1e, Oakland district of Union Parish, where they have developed 200 bbls. production, and have four wells under way. So far these operators have had that district all to themselves, but that they are apt to have competition in the immediate future appears in a location by J. E. Cammatte and others for No. 2 Tugwell in the NE NW Section 21-22-1e. Two or three years ago Cammatte drilled in the same district but got a dry hole.

Morgan Oil Co. has given up, for the time being at any rate, trying to get a deep well on the southwestern flank of the Bellevue Dome in No. 1 Smith, Section 26-19-11, after testing dry at 1,044 feet and coring a water sand at 1,150-52 feet. At the same time, it moved 20 feet east and has begun drilling No. 2 Smith and has set its first string at 370 feet. Northwest Louisiana Gas Co.'s No. 8 Pine Woods in Section 34-23-11, about a half mile east of No. 7, which is waiting on standard rig to pump from a total depth of 3,041 feet, tested salt water at 3,418 feet and is temporarily abandoned.

Atlantic Oil Producing Co. made an-

(Continued on Page 140)

BRAUN
HEAT EXCHANGERS



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Refugio Oil Field Extended to North

Several New Wells Near Completion in Joe Bruner Field. Attempt to Start Drilling on Luling Townsite Delayed

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Nov. 12.—There were interesting developments in nearly every pool in southwest Texas the past week and one of the most interesting is W. L. Pearson's No. 1 Mitchell at the north end of the Refugio Field in Refugio County, a half mile north of the Texas Gas Co.'s No. 2 Holmes Heard. The Mitchell well at 3,680 feet is coring a sand that is showing oil. No. 2 Holmes Heard, it will be remembered, recently came in an oil well at 3,701 feet. It got the top of the pay at 3,685 feet and has been making 500 bbls. clean pipe line oil every 24 hours through a three-eights-inch choke free from water and is a fine well. It looks like Pearson has extended the field a half mile north. Several new rigs are moving into that field. William F. Morgan is going to deepen one well in the north end of the field and drill another in the south, and has two rigs moving in now. George E. Smith is going to move a half mile west of his 3,700-foot gas well and drill another hole and try and extend the field.

Agua Dulce Field

In the Agua Dulce Field in western Nueces County, it looks as though the new wells are due to be gassers. They were to drill in Sunday, but drill stem tests and cores of the sand seem to indicate they will be gas propositions. They are the first to come in since the bringing in of the discovery well, the Grimm & Morris' No. 1 Garret. One is the Houston Oil-Sun Oil's No. 1 Talbert, an east offset to the discovery well, and the other is the Agua Dulce Oil & Gas Co.'s No. 1 Sponberg, a half mile northeast of the discovery well, the first at 2,018 feet and the second at 2,029 feet. The R. & G. Corp.'s No. 1 Ed Allen, a mile south, got water in the same sand, but a little deeper and is drilling down in the hope of picking up another sand. The discovery well is a gasser of big proportions, gauging 100,000,000 feet of wet gas at 2,020 feet.

Joe Bruner Field

In Caldwell County the Joe Bruner Field is on the verge of adding several new wells. M. K. Towns' No. 1 W. W. Hickman got the top of the Edwards at 2,716 feet, which is about normal with other wells in the field, and it should be an Edwards lime producer by the middle of the week and the farthest northeast producer in the field, a mile from the other wells. Carl Brothers and Suttle are deepening No. 1 Cora Malone on the south end of the field and by the middle of the week it should be producing from the Edwards lime as well as from the Austin Chalk. It will extend the Edwards lime production about 3,750 feet south. Sun Oil Co. is about to bring in its No. 2, which is an offset to its No. 1 Malone, and will no doubt be a producer.

One of the features of the field is the Golden West Oil Co.'s No. 2 Wilson, an offset to the Sun Oil Co.'s No. 2 Malone, discovery Erwards lime well of the field. Golden West's well drilled into water, and it was announced would plug back. It has been pumping with an inadequate outfit, but it about pumped down the water. A bigger engine has been put in. All the water is coming from below the first cap, but there seems now to be considerable oil coming with the water, and for the present at least Golden West will not attempt to plug off the water, the pump being able to handle it and get probably the maximum production of oil also. Hadley's No. 1 Tiller and Luling Oil & Gas Co.'s No. 3 Carter, at the northeast end of the field, got the Edwards seemingly too deep. They are probably a little too far to the east; production may extend that far to the northeast, but it is likely to be a little west of their wells.

On the south end of the area is the townsite of Luling, and operators are trying to get some wells started inside the townsite on small lots. The Oil and Gas Division of the Texas Railroad Commission has thus far refused to issue permits unless the location complies with the rules to be at least 150 feet from the lease line in all four directions. They are advising operators to pool their interests and to induce the royalty owners to enter into the plan and get enough ground around the location to comply with the rule. It is possible this may be done in some instances, but it has not been successful yet.

Laredo District

In the Magnolia-Cole Pool in Webb County, Magnolia has extended production one location east with its No. 10 Valdez flowing 300 bbls. of oil a day, and in the Albercas Pool Rycade has extended production one location south with its No. 3 Yeager-Strohman flowing 300 bbls., and in the Schoolfield-O'Byrne Pool in northwestern Duval County Magnolia has extended production a quarter mile north by bringing in No. B-1 Hahl, a 35-bbl. well in sand at 2,345-48 feet, the regular depth of the field. Sun Oil Co.'s No. 1 Henne-Finch, in the same field, swabbed 500 bbls. at the same depth. It is an east offset to the discovery well and was slated to produce. The discovery well is still flowing.

These are the most important happenings in that territory in proven fields, except that Robert Driscoll at 2,940 feet has a 40,000,000-foot gas well in his No. 12 fee, with 1,100 pounds rock pressure in Survey 23 and on the east side of the area in which he has been drilling. The well is also in a deeper sand than has been producing.

The area east of the old Jennings gas field in Zapata County, which started out to make an oil pool when O. W. Killam brought in a well flowing 135 bbls. at 1,465 feet on the Cuellar land, got a setback last week when South Texas Production Co. got a gas well in its No. 1 Jennings with rock pressure of 500 pounds. Sand depth is 1,420-27 feet.

COMPLETIONS

Duval County

Sun Oil Co.'s No. 1 Henne-Winch, Survey 250, Schoolfield-O'Byrne Field, completed at 2,345 feet is flowing 500 bbls.

Magnolia Petroleum Co.'s No. B-1 Hahl, Survey 61, Schoolfield-O'Byrne Field, has been completed at 2,357 feet for 35 bbls.

Webb County

Magnolia Petroleum Co.'s No. 10 Valdez, Survey 754, Block 16, Magnolia-Cole Field completed at 2,344 feet is flowing 300 bbls.

Houston Oil Co.'s No. D-15 Benavides, Survey 753, Block 12, Magnolia-Cole Field, has been completed at 2,348 feet for 70 bbls.

Rycade Oil Corp.'s No. 3 Yeager-Strohman, Share 5, has been complete at 2,165 feet for 300 bbls.

ABANDONED TESTS

Caldwell County

Wheelock & Collins' No. 1 Orphana Isaac Weldon Survey, in west edge Luling, has been abandoned as dry 3,150 feet in Edwards with neither nor water.

Jarmon & Owens' No. 1 Tabernac Pablo Martinez Survey, in Lytton Spri Townsite, at 1,600 feet has been aba doned, failing to pick up any serpenti

Webb County

O'Hern & Seacord's No. 6 Benavid Survey 172, Cole gas field, has be abandoned dry at 2,837 feet, sand 2,806-36 feet testing salt water.

Louise Hauseman and others' No. Callaghan, Survey 440, is dry and aba doned at 885 feet.

O. W. Killam's No. M-1 Bruni, Blo 11, Aviator Field, is dry and abandon at 1,972 feet.

O. W. Killam's No. 25 Bruni, Blo 64, Albercas Field, has been abandon dry at 2,771 feet.

NEW LOCATIONS

Bexar County

Dixie Oil Co.'s No. 1 Medina Irri tion Co. William Miller Survey No. 1 1,666 feet to north line and 470 feet west line, has been spudded in.

Caldwell County

Lutex Oil Inc.'s No. 5 Davis, A. Flo Survey, is location in the Bruner Field

M. L. Brown's No. 1 Jackson a others, A. Floyd Survey, Bruner Fie 150 feet to northeast and southeast lin is location.

Lutex Oil Inc.'s No. A-1 W. F. Da A. Floyd Survey, Bruner Field, 150 f to northwest and northeast lines, location.

North & South Development Co.'s 1 K. C. Baker, A. Floyd Survey, Bru Field, 150 feet to northeast and sou east lines, is rigging up.

The Texas Company's No. 1 M. M riweather, A. Floyd Survey, Bruner Fi 150 feet to southeast line and 750 feet northeast line, is rigging up.

The Texas Company's No. 2 M. Mer weather, Bruner Field, is also rigging

Cranfil & Reynolds' No. 2 W. L. Smi A. Floyd Survey, Joe Bruner Field, 1 feet to south and east lines, has derr up and rig moving in.

C. E. Lange's No. 1 Kate Colding. Floyd Survey, is location in Bruner Fi 150 feet to northwest line and 112 f to northeast line.

Goliad County

McCarson's and others' No. 1 Bo Goliad Townsite, is shut down at 90 f

Duval County

Robert Driscoll's No. 13 Driscoll, S vey 448, Driscoll gas field, 2,100 feet east line and 900 feet to south line rigging up.

Magnolia Petroleum Co.'s No. Hahl, Survey 61, Schoolfield-O'By Field, 3,381 feet to east line and 150 f to south line is location.

Gonzales County

The Texas Company's No. 1 M. Th ton, A. Zumwalt Survey, is location feet to northeast lines and 153 feet northwest lines.

Live Oak County

Houston Oil Co.'s No. A-1 Brown L and Cattle Co., M. B. Kibbin Grant, location, in the Cartwright gas field.

Refugio County

William F. Morgan's No. 1 Leslie kins, Refugio Town Tracts, lot 4, Blo 10, is location 150 feet to north and lines of lot.

Webb County

O. W. Killam's No. 1 Killam, Sur

(Continued on Page 143)

WILDCAT IN SOUTHWESTERN BASTROP FLOWING 175 BBLS. IN SERPENTINE

By B. D. Stevenson

SAN ANTONIO, Tex., Nov. 12.—Cranfill & Reynolds' No. 1 Yost, a rank wildcat proposition in southwestern Bastrop County, at 1,598 feet in Serpentine is an oil well and has been flowing about 175 bbls. of oil a day. The well is about 4 miles from the west line of Bastrop County and the same distance from the south line and is 2 miles southwest of Cedar Creek around which a number of wildcat wells have been drilled in the past few years. No. 1 Yost, in the center of the Yost 400-acre farm and in the A. Garcia Survey, got the top of the Serpentine at about 1,480 feet.

Counting spots where only one well has been completed this makes about eight discoveries in Southwest Texas in the past seven months and it is keeping the scouts and geologists overworked to keep up with affairs. The Joe Bruner Field discovery with acreage cut up in small tracts at once began active development. The Roxana's Jolly Field discovery at Larremore was confined to that company pretty largely but this Cedar Creek discovery finds the acreage cut up into small tracts and it means active drilling. Sun Oil Co. has 500 acres close to the well. The Cranfill & Reynolds well is about 20 miles southeast of Austin and is about the same distance northeast of Lockhart. The well swabbed about 178 bbls. in 10 hours and tubing was then started in the hole and it began to flow at the rate of about 175 bbls. a day.

Bee County Gas Well

Right as this well comes in major scouts and geologists are concentrated in northern Bee County where Dr. D. D. Hewitt and associates have a little gas well at 2,837 feet in No. 1 Ray, 2 miles northeast of Pettus on the Southern Pacific Railroad and about 2 miles west of Blanco Creek which is the eastern boundary of the county. When shut in for a day the well builds up about 500 pounds rock pressure and when opened the pressure goes off in about 30 minutes and it makes then only a little gas. It is enough, however, to indicate structural conditions that have not attracted attention heretofore and as a result a half dozen of the major companies which are operating most extensively in Southwest Texas have jumped into the field and are taking leases across the north end of the county in a strip about 2 miles wide and about 15 miles long running southwest from this well. Hewitt's well is in the center of a big block of about 27,000 acres of leases that he holds. Gulf, Humble, Texas, Roxana, Sun and Magnolia have all been leasing in that territory. The well is about 50 miles from any developed production, being that far northwest of the Refugio Field and nearly that far northeast of the Three Rivers producing areas. About 20 miles east of it, Houston Oil Co. got about 2,000,000 feet of gas on the Pettus ranch a year or more ago but never completed the well. Some big tracts have lately been leased also on that side of the new well.

Webb County

William R. Jewell's No. 1 J. M. Gutierrez, Survey 857, Block 8, located 150 feet to the south and west lines, is standing at 80 feet. Louis Hauseman and others'

(Continued on Page 145)

New Salt Dome Found in San Felipe

Second Good Producer in Gay Hill Field, Washington County. Drilling Activity in South Liberty and Barbers Hill

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Nov. 9.—Possibilities of new salt dome production at San Felipe (Brookshire), an expected second good producer in the recently opened Gay Hill Field of Washington County and the drilling activity which has developed in the new shallow sand area of the South Liberty Dome and also at Barbers Hill were holding the attention of Gulf Coast operators at the beginning of this week.

At San Felipe, Gulf Production Co.'s No. 1 Jackson, the first test to be drilled on this new geophysical salt dome, went to what is believed to be cap rock late in the week, and, showing considerable gas, casing was cemented for a test. Although said to be one of the most peculiar yet found on the coast, the formation is accepted by most operators as cap rock, proving out the existence of another dome, and is expected to make a cap rock producer.

Reports on the depth of the test are somewhat at variance with official figures unavailable, but the bottom of the hole is approximately 3,235 feet with the cap rock topped around 3,220 feet.

The San Felipe Dome, sometimes known as Brookshire, or as Sealy, is on the Austin-Waller County line (Brazos River), about 40 miles due west of Houston. It was discovered in 1927 by the torsion balance. Virtually all the acreage is controlled by the Gulf Production Co. with the exception of river rights held by the Dixie Oil Co., which company already has spudded in on its first test. The Gulf test is in the S. F. Austin Survey, Austin County, west side of the Brazos River.

Gay Hill Producer

At Gay Hill, Washington County, Sun Oil Co.'s No. 2 Grote is expected in at any time now. Screen was to have been set by Monday morning. This test is 660 feet northwest of the No. 1 Grote, discovery well of Gay Hill (originally called Somerville) and at latest reports Monday was coring sandy shale showing heavily of oil below 1,207 feet. The 8¼-inch casing was set and cemented at 970 feet. The No. 1 Grote found its production initially 150 bbls. daily, slightly thicker up at a total depth of 1,154 feet. Gay Hill also is one of the new geophysical domes, and although considerably south of the coastal plain is generally included among the Gulf Coast domes.

Among interesting developments the past week was the completion of E. F. Hutchin's No. 1 Ernest Cockrell, which was used for production a second deep well on the west flank of the old Jensen Dome. The well came in Thursday flowing through tubing an estimated 1,500 to 2,000 bbls. of fluid of which gauging reports gave as high as 60 per cent salt water, the oil testing 27 gravity corrected, and coming from sand at 3,820 feet.

This well, it will be remembered, was the discovery well of the deep sands on the west flank, the first deep sand being at 3,845 feet. From that level the oil came in last August flowing an estimated 600 bbls. of virtually pipe line oil and after a short time when it sanded up. After being cleaned out it came back in flowing around 700 bbls., but again soon stopped flowing and was deepened to the Frio sand.

Raccoon Bend

At Raccoon Bend, Humble Oil & Refining Co.-Valley Oil Co.'s No. 2 Urban caused some excitement when it blew out while drilling at 2,327 feet. Catching fire, it destroyed rig and derrick, but Saturday the blaze has been extinguished and efforts were being made to put on a master gate. This sand was unexpected, being the shallow gas sands previously found at Raccoon Bend and the deeper oil sands, to which the test was to have been drilled.

Humble Pipe Line Co. the past week completed its 32-mile extension from its Satsuma station to Raccoon Bend, and the field which has been pinched in to below 700 bbls. daily probably will be opened up the coming week. Raccoon Bend, in which important production was developed only the past summer, is of particular interest in that it is yield ing Grade A as well as Grade B crude. Most of the newer coastal fields have failed to add anything to the rapidly declining Grade A production, from which the coast's low cold lubricating oil stocks are refined. Raccoon Bend crude was added to the Humble's price posting October 13, but the oil until now has been run to earthen and some steel storage.

South Texas Production Co. (Cullen and associates) got a good well on the south edge of South Humble early in the week when its No. 2 Morris, W. T. Charles Survey, came in flowing 500 bbls. of pipe line oil from sand at 4,350 feet. Two wells were completed at Spindletop, Yount Lee Oil Co.'s No. 83 McFaddin, flowing 900 bbls. of 27 gravity oil from sand at 4,879 feet, and the same company's No. 82 McFaddin, making 300 bbls. of 29.7 gravity oil at 2,482 feet.

Yount Lee Oil Co.'s No. 11 Mitchell, north extension of the South Liberty flank sand production, was swabbed for 100 bbls. of oil daily, flowing through tubing, from sand below 3,285 feet. Moody corporation's No. 3 West-Schenck, south side of Blue Ridge, came in flowing 600 bbls. pipe line oil at 3,602 feet, and Gulf Production Co.'s No. 27 Davis, Big Creek, a workover, made 500 bbls. daily at 2,650 feet.

Completions of Week

Other completions of the week were: Brownie Babbitt Oil Co.'s No. 2 McLean, Orange, a workover, pumping 100 bbls. net at 3,573 feet; Republic Production Co.'s No. 6 Dolbear, Hull, a workover, pumping 50 bbls. net, at 2,857 feet; Humble Oil & Refining Co.'s No. 18 Guedry, Hull, a workover, pumping 15 bbls. net, 3,000 feet; Paggi Brothers' 47 Queen City, Saratoga, pumping 12 bbls. net, 1,273 feet; Deutser Oil Co.'s No. 17 Trustee, Batson, pumping 8 bbls. net, 958 feet; Batson Oil Co.'s No. 12 Donohue, Batson, pumping 5 bbls. net, 1,164 feet; Ada Belle Oil Co.'s No. 124 Honeymoon, Batson, pumping 4 bbls. net, 686 feet; The Texas Company's No. 19 Gray, Vinton, a workover, pumping 12 bbls. net, 1,846 feet.

The following abandonments were reported: Rex Petroleum Co.'s No. 4 Hunter, Edgerly, total depth 4,227 feet; Gulf Production Co.'s No. 6 Cain, Pierce Junction, heaving shale, 4,780 feet; Weldon Oil Co.'s No. 8 Kirby, Saratoga, salt water, 764 feet; Gulf Production Co.'s No. 53 Phoenix, salt water 3,357 feet, total depth 4,825 feet; Ryeade Oil Corp.-Humble Oil & Refining Co.'s No. 3 Hudson, Markham, dry 4,166 feet.

Particular interest again is centered on the South Liberty Field in the recently opened shallow sand area on top the dome. The Texas Company, Sun Oil Co. and the Gulf Production Co. are starting up seven new tests, all within approximately 300 feet of Sun's shallow sand discovery. Considering the fact that the sand in the Sun well was at a depth of only 875 feet and produced a well flowing now better than 1,500 bbls. pipe line oil, all this new drilling is of considerable significance.

Drilling also has developed almost boom proportions at Barbers Hill, northern Chambers County, where seven new tests are drilling and three other rigs are setting up.

Daily average production of coastal fields for the week ending November 10 totalled 135,045 bbls., or a decrease of 1,240 bbls., this being due almost entirely to a drop at Pierce Junction, where no new important production has been added for some time. Figures for Gulf Coast fields and also for Southwest Texas were:

GULF COAST

Texas

Allen Dome	7
Barbers Hill	2,320
Batson	1,351
Big Creek	2,355
Blue Ridge	6,810
Brenham	150
Boling	1,903
Damon Mound	650
DeWalt	3,735
Fannette	26
Goose Creek	6,795
High Island	480
Hull	12,099
Humble	3,162
Markham	315
Nash Dome	900
North Dayton	690
Orange	3,798
Orchard	90
Pierce Junction	9,632
Raccoon Bend	697
Saratoga	989
Sour Lake	3,104
So. Liberty and So. Dayton	5,005
Spindletop	40,217
West Columbia	7,801
Total	115,079
Total last week	115,589
Decrease	510

South Louisiana

Anse La Butte	62
Atchafalaya	650
East Hackberry	3,200
Edgerly	775
Evangeline	959
Lockport	3,268
Loreauville	7
Sorrento	686
Starks	734
Sulphur	3,400
Sweet Lake	1,900
Vinton	4,2 3
Welsh	32
Total	19,966
Total last week	20,696
Decrease	730
Total Gulf Coast	135,045
Total last week	136,285
Decrease	1,240

Southwest Texas

Dale	790
Kingsville	275
Luling	14,390
Lytton Springs	1,206
Refugio	450
Somerset	1,984
Mirando district	9,925
Total	29,020
Total last week	28 84
Increase	232

Barbers Hill—Chambers County

Humphreys Corp.'s No. 1 Higgins is waiting casing cement to set to drill in to a shallow sand with an oil showing at a total depth of 370 feet. The 8¼-inch casing is at 510 feet. This is the same shallow sand encountered in another test drilled by the Humphreys Corp. several months ago which tested salt water. Humphreys Corp.'s No. 1-C Kirby is drilling gumbo at 1,717 feet and its No. 3-A Barber is in gumbo at 1,908 feet. The company also has derricks up for No. 1 McLean and No. 6-B Kirby. Bennett Petroleum Co.'s No. 2

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TWO 1,000-BBL. WELLS IN MUSKEGON; ONE IMPORTANT EXTENSION TO FIELD

By Special Correspondent

MUSKEGON, Mich. Nov. 10—Two new wells which will make about 1,000 bbls. a day each from the Dundee formation, a new 250-bbl. producer in the Traverse formation which extends the field fully 2 miles southeast of the present proven area, two new gassers with an open flow capacity of 8,000,000 and 10,000,000 feet a day respectively and a new dry hole are the six completions made in the Muskegon Field during the week.

The completion of greatest importance is the Continental Motors Corp.'s No. 5 fee, NW SE Section 15-10-16, which came in with an initial flow of 250 bbls. a day from the upper Traverse pay sands at 1,709 feet. Drillers had given up hopes of finding anything in the upper Traverse when the well came in throwing oil over the top of the derrick. It has a gas flow of about 500,000 feet a day. It is on a direct line southeast of proven territory in Sections 4, 5, 8 and 9 of Muskegon Township and is the most important extension of the field since the completion of Carl Prather's No. 1 Thompson in Section 12, Laketon Township.

The Johnson Oil Refining Co.'s No. 2 Smith, SE SE Section 5-10-16, which came in as a 6,000,000-foot gasser in the Dundee formation, was cased off and drilled into the oil. It came in through 5⅜-inch casing and will make about 1,000 bbls. a day as an initial producer at 2,072 feet. Fully 5,000,000 feet a day of dry gas also may be produced between the 6⅝-inch and 5⅜-inch casing from the Dundee gas rock immediately above the oil.

The other large new producer from the Dundee oil sands is Kelley Goldboss' No. 3 Burns, SE SE Section 5-10-16, on which the State tried to stop the drilling by its 5-acre drilling rule. This well came in with an initial flow of 50 bbls. an hour, or about 1,000 bbls. a day in the Dundee formation at about 2,065 feet. It also has a flow of about 6,000,000 feet of gas.

Two Good Gassers

Swastika Oil & Gas Co.'s No. 1 Giles, SE SE Section 6-10-16, came in at 2,023 feet in the Dundee pay sands as a 10,000,000-foot gasser. Dixie Oil Co.'s No. 1-D Reeths, SW NW Section 9-10-16, the other large gasser, gauged with an open flow of 8,000,000 feet from the Dundee formation at 1,988 feet.

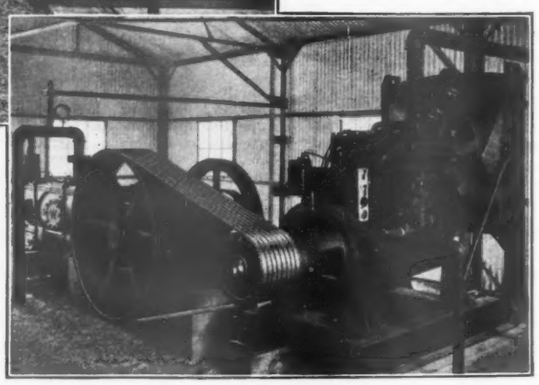
Kelley Goldboss' No. 1 Birch, SE SE Section 5-10-16, was dry in the Dundee formation at 2,060 feet. This is the third dry hole in the Dundee formation and the tenth dry hole in the field. Four of these were plugged when no production was discovered in the upper Traverse pay sands and may be drilled deeper with every prospect of becoming producers. All three of the dry holes in the Dundee formation are southwest of the discovery well and the heart of the proven field and are within a comparatively short distance of each other.

One well was drilling into the Dundee pay sands and three were nearing production in the upper Traverse pay. The first was the Dixie Oil Co.'s No. 11-D Figge, NW NE Section 8-10-16, drilling at 2,045 feet with a show of gas in the Dundee. Two others nearing the upper Traverse pay sands were the Puritan Oil Co.'s No. 1 Plunkett, SE SE Section 8-10-16, and C. M. Bowers' No. 1 Curtis, SE NW Section 7-10-16. Both were below 1,600 feet. Brien & Brien's No. 1 Fagan, NW SE Section 10-10-16, was drilling in at about 1,600 feet.

Five new wells are near production in

(Continued on Page 137)

100 H.P. Texrope Drives. Waukesha Engines driving Air Compressors. Donner Plant of Snowden & McSweeney, Little River, Oklahoma.



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Write for Bulletin 1228-H on general applications of Texrope Drives and Bulletin 1239 for oil field applications. Bulletin 1141 describes the Allis-Chalmers Steel Frame Oil Well Motor.

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Lea County, N. M. Again in Limelight

Skelly Oil Co.'s Test Flows 100 Bbls. in 12 Minutes. Will Finish Eaves Well With Rotary. Eastern Colorado Test

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Nov. 10.—Lea County, New Mexico, supplied the Rocky Mountain area with a sensation this week when the Skelly Oil Co.'s No. 1 Joyner was reported flowing at the rate of 12,000 bbls. a day. However, it made that quantity for only 12 minutes and after cleaning itself did not flow for the next two hours. Other wells in that vicinity are showing some interesting results, some encouraging and others discouraging. The Marland Production Co.'s No. 1 Lynn is having some good shows of both oil and gas and is feeling its way towards the pay. The Midwest Refining Co.'s No. 1 Farnsworth on the east side of the Jal structure is not so encouraging, and the Marland's No. 1 Brooks encountered sulphur water and may be abandoned. The Midwest's No. 1 State on the Hobbs high was opened up this week and made 948 bbls. first 24 hours and 625 bbls. in the second period. Eddy County has what looks like a 200-bbl. well in the south end of the Artesia Pool in Flynn, Welch & Yates' No. 55.

A deep test in eastern Colorado near the Kansas-Nebraska line is assured by a deal in which the Parker Club, Inc. becomes identified with the Etnyre Syndicate in completing its well in Yuma County. There were no completions in Colorado for the week.

In Wyoming, the Ohio Oil Co. completed a 60,000,000-foot gas well in the Baxter Basin Field, the Ohio Oil Co. had a 20-bbl. well on the Oregon Basin Dome, and Salt Creek had one completion. The Mountain Producers Corp.'s Sundance sand well in Salt Creek flowed 3,060 bbls. in the first 24 hours upon being completed.

New Mexico

The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE, Section 26-25-36, in southeastern Lea County, New Mexico, created somewhat of a sensation this week when it flowed 100 bbls. in 12 minutes from lime at a total depth of 3,251 feet. However, after cleaning itself it did not flow again for two hours. This well is in the Jal area and is located 5½ miles north and 1½ miles west of the Marland Production Co.'s No. 1 Eaves, a 90,000,000-foot gasser, and the farthest west of the tests so far drilled in that immediate vicinity. This well has been promising for some time. It bottomed the salt at 2,950 feet and had a gas show at 3,036-40 feet, followed by an oil show at 3,180 feet and gas, estimated at 500,000 feet, at 3,233 feet. The well was shut in awaiting connections and tankage.

News this week from other wildcats in Lea County included features that were both encouraging and discouraging. The most encouraging news was from the Marland Production Co.'s No. 1 Lynn, NW cor. SE, Section 26-23-36. It is bottomed at 3,185 feet in brown porous lime and had a show of oil at 3,175-78 feet followed by another at 3,180-81 feet and a show of oil and gas at 3,182-84 feet. Coring ahead is in progress. Previously this test had a show of oil at 3,135 feet followed by a flow of sulphur gas estimated at 15,000,000 feet at 3,091 feet. In order to understand the importance of this test and the Skelly discovery it is well to recall its location. The first discovery in this immediate area was the Texas Production Co.'s No. 1 Rhoades, SE NE NW, Section 22-26-37, which was completed a year ago at 3,216 feet with an initial production of 22,000,000 feet of gas and 120 bbls. of oil. The Marland Production Co. then drilled its No. 1 Eaves, SW NE, Section 19-26-37, 3 miles west of the Rhoades well and encountered a flow of 90,240,000 feet of gas at 2,968 feet. In the meantime, the Gibson & Johnson's No. 1 Leek, 4½ miles to the south in Winkler County, Texas, came in as an oil well, but conditions indicated that it was on the southern end of the structure. The Marland company then went 6 miles north of the Eaves well and in its No. 1 Sholes, NW cor. SW, Section 19-25-37, had 50,000,000 feet of gas at 3,030 feet. The Lynn well of the Marland company, which is at present giving evidence of coming in as a producer, is located 17 miles north of Eaves gasser. On the eastern side of this area, the Midwest Refining Co.'s No. 19 Farnsworth, SW SW, Section 12-26-37, does not look so encouraging. It is bottomed at 3,777 feet in lime and has 3,100 feet of fluid in the hole of which 2 per cent is oil. Above this horizon, however, it had some good oil shows, but no heavy flows of gas and it begins to look like an edge well. Other wells in this area which have a direct bearing in proving the district include the following: The Texas Production Co.'s No. 1 Cagle, NE SW, Section 9-26-37, located 2½ miles north and west of the same company's Rhoades well, the same distance west of the Midwest's No. 19 Farnsworth, and the same distance northeast of the Marland's Eaves well, had 10,000,000 feet of gas at 2,857 feet. The rig caught fire and was burned. A rotary has been set up and drilling is about ready to be resumed. The Texas company's No. 1 Moberly, NW SE, Section 17-26-37, is bottomed at 2,879 feet and waiting for a 4-inch drill stem, and its No. 1 Shepherd, SE cor. NE, Section 6-26-37, is fishing for toons at 2,895 feet. Cranfill & Reynolds' No. 1 State, SE NE, Section 23-26-36, located 1½ miles west of the Eaves well, is drilling in salt at 2,075 feet, the salt being topped at 1,835 feet.

Will Use Rotary

The Marland's No. 1 Eaves, SW NE, Section 19-26-37, which has been tied up ever since it struck the big flow of gas several months ago, is rigging up rotary tools and will endeavor to go through the gas horizon. The same company's No. 1 Sholes, NW cor. SW, Section 19-25-37, which has been delayed at 3,030 feet ever since it struck the gas, has succeeded in fishing out the tools and is shut down waiting for orders. Among the other Lea County wildcats, Hill & Abel's No. 1 Maechtel, SW cor., Section 5-26-33, is drilling at 250 feet in the red beds. The Marland Production Co.'s No. 1 Brooks, NW cor. SW, Section 8-20-33, does not look very encouraging. It has a hole full of sulphur water at 3,210-20 feet in sandy lime and may be abandoned. It topped the lime at 2,865 feet. The Midwest Refining Co.'s No. 1 State, NE cor., Section 9-19-38, on the Hobbs high, which has been shut down after showing for a producer at a total depth of 4,203 feet until a 55,000-bbl. tank could be erected, was opened up this week. It flowed 948 bbls. the first 24 hours and 625 bbls. in the second 24 hours. It will be thoroughly tested at this depth before any decision is made as to future plans. Early in September it averaged around 500 bbls. a day for several days. This well opened a new pool. A. D. Morton's No. 1, C NW, Section 29-11-38, in the Tatum district, is drilling at 850 feet in the red beds, and the Marland Production Co.'s No. 1 Warren, SW SW, Section 28-20-38, is drilling at 390 feet in the red beds. The Marland's No. 1 Reed, NE SW, Section 22-20-36, is bottomed at 510 feet and running the 15½-inch, and its No. 1 Lockhart, NW NW, Section 31-21-36, is drilling in the red beds at 900 feet. The same company's No. 1 Slattery, SW cor. NE, Section 7-22-35, is drilling in salt at 1,925 feet. The salt was topped at 1,615 feet. Same company's No. 1 Danciger, SW cor., Section 7-23-36, is drilling at 3,675 feet in lime. The lime was topped at 3,584 feet. The Marland's No. 1 King, NE cor., Section 26-25-32, is bottomed at 4,328 feet and shut down waiting for orders. The hole is bottomed in salt. Same company's No. 1 Meyer, SW NW, Section 26-20-37, is bottomed at 890 feet and the tools are hung up in the pipe. The Empire Gas & Fuel Co.'s No. 1-C State, SW cor., Section 12-21-34, is rigged and ready to spud. It is located 1¾ miles west of its No. 1 State, Section 8-21-35, which is making 160 bbls. of oil and the same quantity of water. It has been on production since early in September. The Gypsy Oil Co.'s No. 1 Ramsey, SW cor., Section 34-21-36, in the Eunice district, ran into more gas at 3,395 feet, the quantity being estimated at 1,500,000 feet, and is tied up with a fishing job. The Maljamar Oil & Gas Co.'s No. 2 Pearsall, NE NE, Section 33-17-32, in the Maljamar Pool, is drilling below 870 feet in the red beds, and the C. E. Reynolds Drilling Co.'s No. 1 Anderson, C SE, Section 29-13-37, is fishing for tools at 5,063 feet. The hole is bottomed in lime.

In Eddy County

Eddy County has an interesting well in Flynn, Welch & Yates' No. 55, on the southern edge of the Artesia Pool in the SE NW NE, Section 32-18-28. It was shot with 140 quarts at 2,008-37 feet and responded with three flows and then filled 1,600 feet in 50 minutes after cleaning itself. A swabbing test indicated about 200 bbls. in 20 hours. The same company's No. 1 Jackson, C NE, Section 13-17-30, set the 8¼-inch at 2,415 feet (corrected) and is drilling at 2,420 feet. It had a show of oil at 2,357-65 feet in white sand. Leonard & Levers' No. 1 Haggerty, NE cor. NW, Section 18-16-30, is underreaming the 8¼-inch at 2,140 feet. It had 100 feet of salt water at 2,135 feet.

In Guadalupe County, the Navajo Oil Co.'s No. 1 Goard, NE cor., Section 10-2n-17, has replaced rig destroyed by fire and is pulling the 10-inch. Total depth is 2,750 feet.

In Curry County, the Frio Oil Co.'s No. 2 Sanders, NW NW, Section 11-5n-35, is shut down at 1,308 feet waiting for casing.

In Chaves County, R. T. Neal's No. 1 Russell, NW Section 21-14-25, is bottomed at 1,002 feet and straightreaming to lower the 8¼-inch. Snowden & McSweeney's No. 1 Merchant, NW NW, Section 27-15-23, is shut down in shale for orders at 3,483 feet.

In San Juan County in the northwestern part of the State, the Midwest Refining Co.'s No. 22, Section 36-22-14, Stony Butte structure, is drilling at 2,008 feet in sandy shale. The Continental Oil Co.'s Pennsylvania test on the Rattlesnake Dome, is still fishing at 6,338 feet. The Dorothy Oil Co.'s No. 2 Goede, Section 29-30-9, in the Blanco district, is drilling at 400 feet, and the Angel Peak Oil Co.'s No. 1 Garland, in the Kutz

(Continued on Page 105)

LARGE GAS FIELD DISCOVERED IN RIBSTONE-BLACKFOOT AREA

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Nov. 10.—Another large gas field in Alberta was opened a few days ago when Meridian Oils' No. 1, LSD 1, Section 16-45-1w4, blew in at 1,820 feet depth, with a production estimated at 30,000,000 feet a day. The location is on the Ribstone-Blackfoot structure in east central Alberta, about 70 miles east of the Wainwright Field and close to the Saskatchewan boundary. The structure itself extends across the boundary into Saskatchewan. At last report the flow had been got under control, and showed a slight decrease. The test was originally started by the Advance Oil Co. of Calgary, and was last summer taken over by Meridian Oils, Ltd. A heavy gas flow was not looked for, as oil was expected and previous drilling on other parts of the Ribstone-Blackfoot structure showed no indication of gas in large quantities.

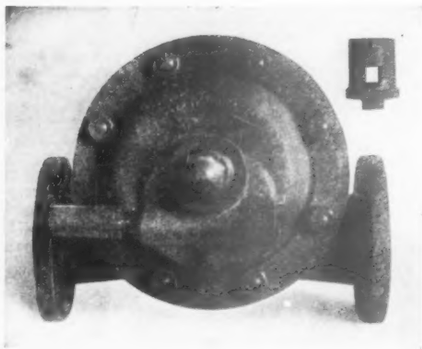
Charles Dingman, government geologist at Calgary, is making a complete test of the well, but results of this test are not yet available, nor has it been determined whether the gas is dry or wet, though it is thought to be a dry gas similar to the production from the Viking and Wainwright Fields further west, and from practically the same horizon. In the Wainwright Field the main gas and oil horizon is usually met around 2,200 feet. Two unsuccessful tests had previously been completed on other parts of the Ribstone-Blackfoot structure. Imperial Oil, Ltd., Ribstone No. 1, Section 5-45-1w4, got a small oil show around 1,900 feet, but was carried to 3,489 feet without securing commercial production. At this depth it was some distance in the lime. Ribstone Oils' No. 1, LSD 1, Section 1-46-1w4, was abandoned a few months ago after drilling to 2,056 feet. Ribstone Oils' No. 2, LSD 5, Section 2-47-1w4, is drilling around 700 feet, and London-Ribstone No. 1, LSD 14, Section 10-43-3w4, is reported drilling at 2,248 feet after encountering an oil show which failed to develop a satisfactory production.

Meridian Oils, Ltd., is financed largely by the same interests that own Ribstone Oils, Ltd. J. H. Woods of Calgary is president and L. H. Miller is managing director of both organizations. Meridian Oils, Ltd., holds 1,000 acres on the structure, and Ribstone Oils, Ltd., has over 30,000 acres, with an option on a further 5,300 acres held by Rex Austin and associates of the Lloydminster Oil & Development Co. The Ribstone-Blackfoot structure was reported on by Dr. G. S. Hume of the Geological Survey of Canada in 1926. The Meridian production may be piped to Saskatoon, which is 170 miles east; but no pipe line will likely be undertaken till the field is further proven.

Irma-Wainwright Field

In the Irma-Wainwright Field, east central Alberta, Fabyan Petroleums' No. 1, LSD 8, Section 24-45-8w4, is at 1,890 feet and looks like a big gasser with a fair accompanying production of crude

(Continued on Page 137)



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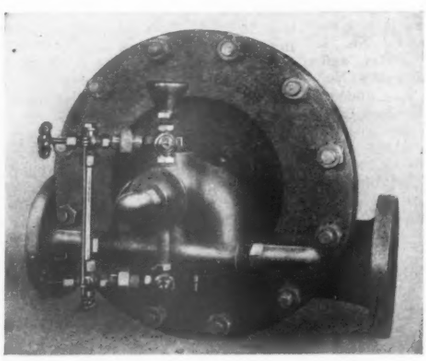

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Conservation to Curb Santa Fe Springs

Potential of 300,000 Bbls. Indicated. Kettleman Hills Well Makes 2,250 Bbls. of 60.5 Oil. Elwood May Be Largest District in the State

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Nov. 10.—With three wells already completed in the deep zone, Santa Fe Springs gives every indication of fulfilling engineers' estimates that it would show a potential daily production of approximately 300,000 bbls. It is not likely, however, that the actual daily production will ever approach the total potential output as the projected conservation work precludes the attainment of any such peak, if this commendable program is successfully carried through. The operators' committee of 15, consisting of H. R. Macmillan, chairman; C. B. Colby, Star Petroleum Co.; L. J. King, Associated Oil Co.; L. B. Little, Standard Oil Co.; J. N. Hicks, Superior Oil Co.; J. U. Stair, Shell Oil Co.; A. C. Rubel, Union Oil Co.; B. E. Parsons, General Petroleum; C. E. Olmsted, The Texas Company; W. E. Dunlap, Richfield Oil Co.; E. R. Stanley, George F. Getty Co.; George Machris, Wilshire Oil Co.; R. E. Sterns, Universal Consolidated Oil Co.; H. C. Dunbar, Bellview Oil Co., and L. A. Lewis, has already ratified a curtailment plan which contemplates an arbitrary proration or reduction in production if necessity demands. The conservation work has as its primary objective the conservation of natural gas. No attempt is being made to reduce arbitrarily the production of crude oil only so far as necessary to prevent wastage of gas; it will be necessary to pinch in production of crude to equalize conditions and maintain a favorable gas-oil ratio.

Two Distinct Plans

The operators' committee has approached the conservation problem from all angles and two separate and distinct plans will be carried out. There seems to be a general misunderstanding regarding the method to be followed and it might be well to state what individual producers will be asked to do. Successful conservation work is synonymous with the elimination of waste and the development of maximum efficiency in production by utilizing the inherent energy of natural gas to the highest degree. No single plan would accomplish both purposes simultaneously and in an equitable manner and two methods will be carried out. One plan contemplates the prevention of excess production of natural gas and the other attempts to handle the output of gas which will normally accompany the oil to the surface. The former will be accomplished by prorating or arbitrarily reducing the production of each producing well. The pinching in of this crude production will naturally be reflected in a corresponding decline in the production of natural gas. The second plan will be accomplished by utilizing natural gas resulting from deep-zone exploitation for repressuring work and storage in the Foix and Meyer horizons which overlie the deep Buckbee zone.

This projected conservation work which contemplates primarily the prevention of excess production of natural gas as far as possible and secondarily the elimination of waste by utilizing any surplus natural gas above field requirements, for repressuring work and storage until needed, is of paramount importance. The operators' committee of 15, appointed several weeks ago, has approved the proposal to arbitrarily reduce production and this plan has already been submitted to producers for ratification. The second phase or repressuring plan, which contemplates the utilization of excess production of natural gas for storage in the Foix and Meyer zones, has just been tentatively ratified by operators and plans are already under way to carry it forward.

Although Santa Fe Springs will occupy the center of the spotlight the next several months due to deep-sand exploitation, it is likely other areas will also attract attention. State production will show a very decided upswing early next year and while many are of the opinion that production curves will show a more favorable trend thereafter, this position is hardly justified in view of the deep zones awaiting development and projected drilling operations in recently discovered fields. Long Beach is perhaps the only field in the State at present which can be expected to register any appreciable decline during the next six months. Every other field in the State has either already reached the settled stage or, on the other hand, has a possibility of registering increased production. The Long Beach, or Signal Hill Field, will naturally show a decline due to normal settling but this drop may be temporarily arrested later next year if the Los Cerritos area of this field yields deep prolific production. This area has possibilities and while operators anticipate a substantial decline in daily production at Long Beach it would not be surprising if the output continued at a relatively high rate for some time, as at least 100 new wells will be started in the Los Cerritos town lot area if the General Petroleum should secure large production in any of its three wells now under way.

Elwood Field

The Elwood Field of Santa Barbara County and the Kettleman Hills Field of Kings County will both show increased production as time goes on and those two fields may become important factors before 1929 ends. Both are capable of resulting in substantial production but the actual output will be governed by the amount of development work. The Barnsdall Oil Co., from present indications, controls the entire potential productive acreage at Elwood but acreage in the Kettleman Hills Field is not so strategically held, especially as the latter field is expected to yield production over an area in excess of 5 miles. If surface indications are any criterion of subsurface conditions this field will be approximately 8 miles long and by far the largest district in California. The potentialities of the Elwood and Kettleman Hills Fields are evidenced by recent completions. At Elwood the Barnsdall's No. 2 Bell Luten, the second completion, located approximately 500 feet east of the discovery, came in under a natural flow doing 4,750 bbls. of exceptionally clean 38.9 gravity oil and 1,500,000 feet of wet gas daily from 3,403 feet. This well, which would probably do 7,500 bbls. daily if permitted to flow wide open, was exceptionally live as it only required 11 minutes for it to get under way. The drilling fluid was thinned out by the addition of a little water and the well came in under control with the first run of the swab.

Kettleman Hills

The Kettleman Hills area, located principally in Kings County, will probably become one of California's most important fields if subsequent completions follow in the footsteps of the Milham Exploration Co.'s No. 1 Elliott. This well blew in out of control doing approximately 50,000,000 feet of exceptionally wet gas and several hundred barrels of high-grade oil daily on October 5 and, while every one regarded this discovery as of paramount importance, its real value was not appreciated until after the well had been capped and brought under control and a gas trap installed. The Milham's No. 1 Elliott, the initial completion in the Kettleman Hills Field, is the largest producer of high gravity oil in existence. It is making 2,250 bbls. of clean 60.5 gravity oil daily but is probably capable of making at least 5,000 bbls. daily under favorable conditions. The production of this well is being held down as about only 50 per cent of the gas production is passing through the gas trap. This well was brought under control after running wild for several weeks and a christmas tree with two outlets installed, both of which indicate a constant pressure of 1,170 pounds. The Milham interests contemplate an ambitious development program consistent of course with well established oil field practice. The General Petroleum is laying a new 6-inch line from Kettleman Hills to Lost Hills, where it will connect with existing facilities. The Milham is rushing additional tankage facilities to completion and with the installation of another gas trap the General Petroleum will probably be running around 5,000 bbls. a day from this discovery well. An absorption plant is also scheduled to be erected and actual construction will be undertaken shortly. It is the present intention of the Milham Exploration Co. to drill two new wells and the Standard will probably also spud in at least one new well. About five new wells should get under way within 30 days. If either the General Petroleum's No. 2 Oeschner, in Section 26-22-18, or the South Dome Oil Co.'s No. 1, in Section 35-24-19, secures production an extensive drilling campaign is anticipated.

Santa Fe Springs

The deep zone exploitation at Santa Fe Springs has already begun to bear fruit and a survey indicates the probable completion of several new wells within 15 days. The deep zone at Santa Fe Springs is producing 15,300 bbls. of clean pipe line oil and 20,000,000 feet of saturated gas per day, but this will be greatly augmented in the near future, and this up trend will probably continue practically uninterrupted until after the peak has been reached next year. The deep zone development already well under way at Santa Fe Springs has revealed a number of interesting situations. One hears considerable talk of the so-called Buckbee zone in this area and the industry, no doubt, has a somewhat confused interpretation of existing conditions. There is no general unanimity of opinion regarding subsurface conditions at Santa Fe Springs due primarily to the limited amount of data available but it has been fairly well established that two separate and distinct horizons have actually been proven. While the entire thickness of oil sand below the Meyer zone is generally referred to as the Buckbee horizon, the latter zone in reality is of secondary importance up to now. The intermediate Nordstrum zone, located on top of the structure between 4,850 feet and 5,350 feet, has a greater thickness than the underlying horizon which is encountered at about 5,595 feet on the apex of the structure. It is a little too early to say dfeinitely that the Buckbee zone is only about 250 feet thick as subsequent development work may prove the existence of an additional thickness, but a gray sand was cored immediately below the Buckbee zone at 6,002 feet in No. 2 Grohs of the Bellview Oil Co. It is unknown whether this was a water sand or merely a barren gray sand but it tends to confirm the opinion that the Nordstrum zone has a much greater thickness than the Buckbee as the former is almost solid. George F. Getty's No. 17 Nordstrum is the only well completed in the intermediate zone but the Star Petroleum Co. is making preparations to give it a further test within a few days. This projected new well drilled 92 feet into the deep Buckbee horizon but has subsequently been plugged back from 5,702 feet to 5,530 feet to test out the Nordstrum horizon before making a bid for production in the underlying Buckbee.

Below the Buckbee?

One of the most interesting features in connection with the deep zone development at Santa Fe Springs is the probability of encountering substantial production far below the Buckbee zone. Paleontological research has definitely established that the Miocene has not yet been reached by any of the deep wells at Santa Fe Springs. This is of paramount importance as most productive sands in the Long Beach Field were not found until after the Miocene had been penetrated. It is likely that deep prolific production will be developed in Santa Fe Springs. That the operators' conservation committee has already taken cognizance of this is evidenced by the fact that its curtailment program does not mention any specific zone but covers each flowing well producing from zones lower than the Meyer horizon. At least 2,000 feet of formation below the 6,000-foot level at Santa Fe Springs is geologically favorable for substantial production and while this supposition is based entirely on theory and the results of deep drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	2,839,582	8,935,594
Fuel oil	.....	.....	31,850	4,550	143,471	6,716,619
Diesel and gas oil	71,150	10,164	131,325	18,761	1,745,589	2,375,151
Gasoline	306,384	43,769	426,237	60,891	11,996,006	7,964,273
Tops	.....	.....	79,500	11,357	339,100	.....
Coastwise—						
Crude oil	222,743	31,820	459,407	65,630	20,692,230	21,380,305
Fuel oil	393,285	56,184	407,570	58,224	14,148,096	11,342,757
Diesel and gas oil	.....	.....	23,993	3,428	963,780	356,860
Gasoline	147,721	21,103	323,640	46,234	7,934,126	8,753,341
Kerosene	859	122	245	35	66,757	230,801
Tops	.....	.....	.....	.....	171,566	219,255
Exports—						
Crude oil	54,875	7,839	.....	.....	1,840,332	2,138,240
Fuel oil	313,941	44,849	345,268	49,324	19,221,878	24,800,827
Diesel and gas oil	.....	.....	39,488	5,641	1,967,340	1,256,724
Gasoline	182,532	26,076	272,078	38,868	6,321,822	4,585,878
Tops	55,927	7,990	.....	.....	3,542,001	1,953,467

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	342,425	762,762
Gasoline	.....	.....	78,074	11,153	1,750,169	1,928,520
Lubricants	.....	.....	.....	.....	277,151	370,180
Coastwise—						
Fuel oil	.....	.....	68,301	9,757	3,050,072	4,464,101
Diesel and gas oil	.....	.....	3,976	568	267,211	223,583
Gasoline	260,408	37,201	137,607	19,658	4,124,322	4,564,294
Kerosene	11,264	1,609	17,219	2,460	214,441	213,109
Exports—						
Crude oil	.....	.....	.....	.....	96,250	.....
Fuel oil	.....	.....	73,582	10,512	2,063,154	2,381,308
Diesel and gas oil	.....	.....	.....	.....	10,400	.....
Gasoline	.....	.....	68,802	9,829	3,822,518	2,678,443
Kerosene	.....	.....	.....	.....	470,760	897,155
Lubricants	.....	.....	.....	.....	33,535	26,695

at Long Beach every indication points to its existence in reality.

Burning Well Controlled

General Petroleum engineers have just successfully capped George F. Getty's No. 17 Nordstrum, which blew in out of control on September 16 and took fire almost immediately. This gasser burned continuously for seven weeks before being brought under control. While it was running loose General Petroleum engineers dug a 240-foot tunnel and intercepted the casing approximately 50 feet below the surface to undertake control work. The two outer strings of casing were stripped off for a distance of 5 feet in the chamber constructed around the well beneath the surface and the 9-inch casing, which had been landed above the oil sand, was tapped with four 3-inch lead pipes which were conducted out through the mouth of the tunnel. This relieved the pressure at the mouth of the well to such an extent that engineers by utilizing a giant crane were able to place a cone over the mouth of the well and snuff out the flame. After the fire was extinguished it was several days before the cone was removed and a christmas tree installed. This well, the largest deep-zone producer in the Santa Fe Springs Field, is doing 5,820 bbls. of 35.8 gravity oil and 11,100,000 feet of exceptionally wet gas daily. This exceptionally large production is being secured via the four 3-inch outlets which tapped the 9-inch casing at 50 feet below the surface. The oil and gas is being led out through the control tunnel and while preparations are being made to hook up this well in the usual manner by making connections at the surface, Getty would probably be more than willing to permit the well to continue producing on its present basis if it was not that it interfered with drilling operations on adjoining leases. This gasser resulted in the dismantling or destruction of about eight derricks and has forced an absolute suspension of drilling operations on nearby leases for over eight weeks. General Petroleum engineers are receiving commendation for the capping of this gasser which blew in without warning over two months ago.

Other Operations

The Texas Company's No. 7 on Mattern Lease No. 2, which was finished on October 25 flowing 3,240 bbls. per day, has consistently built up with the result that it is flowing 4,420 bbls. of clean 34.9 gravity oil and 3,600,000 feet of wet gas daily. It is flowing through a 1 7/16-inch bean under a pressure of 1,775 pounds. York & Lockhart's No. 1 McKeon, a new well which came in under a natural flow during early last week, is doing 3,015 bbls. of exceptionally clean 35.4 gravity oil and 2,450,000 feet of saturated gas daily. This well, which was bottomed at 5,707 feet, is flowing through open hole as the last pipe used was a 6⅝-inch water string landed and cemented above the Buckbee zone at 5,613 feet. No sand trouble has yet been experienced at Santa Fe Springs and no pipe has yet been used below the water shutoff made just above the Buckbee zone. Both York & Lockhart's No. 1 McKeon and The Texas Company's No. 7 on Mattern Lease No. 2 are flowing through open hole below the last shut off. The Shell Oil Co. redrilled and deepened its No. 12 Slusher at 5,865 feet in an effort to stimulate production but this well apparently encountered bottom water as the output was cutting 45 per cent water when returned to production. The well was again killed on November 7 and a 50-foot plug put in the bottom of the hole. It will probably be given another production test within a few days as preparations are already under way to drill out the cement. This well originally blew in doing 1,185 bbls. per day from 5,758 feet on October 1 while a water test was being made on the 5¾-inch landed and cemented at 5,744 feet. The initial output was clean but since the well only had a penetration of 14 feet Shell officials deemed it advisable to take advantage of the maximum amount of oil sand present and the well was accordingly redrilled and deepened to 5,865 feet where a water sand was inadvertently picked up.

The Associated will probably finish No. 2 Jordan within a few days and favorable production is anticipated. This well was given a preliminary production test during early in the week and it made 1,595 bbls. of clean 35.1 gravity oil during the 24-hour test. Only 10 feet of sand had been opened up previous to this test but it is the intention to drill ahead and open up another 100 feet. A satisfactory water shut off was secured in this hole at 5,618 feet, at which depth a string of 9-inch was landed and cemented. The Bellview Oil Co.'s No. 2 Grohs should also be in a position to make a bid for production within a few days as it is being drilled out. The General Petroleum, which is running 40 strings of tools and has six additional rigs in course of construction, will probably not have any of these wells ready for production until along about the latter part of the month but since 30 of them are below the 4,000-foot level a large part of this group should be finished between now and the close of 1928. The Union Oil Co. is stepping along with a progressive drilling campaign involving 21 wells, two of which, No. 30 Bell and No. 11 Alexander, are scheduled for completion within 15 days. The Texas Company is making up for lost time with 24 strings of tools in operation. The Standard and Shell are working on 19 wells and 30 wells, respectively, and, while the latter is not scheduled to finish any potential producers before December 1, the Shell may finish Nos. 13, 14 and 16 on the Golay lease within 15 days.

Long Beach

Development work at Long Beach resulted in the completion of four new wells with an aggregate initial daily output of 5,915 bbls., the largest the Richfield Oil Co.'s No. 18 Haas. This project, carried down to 7,062 feet but subsequently plugged back to 7,023 feet and finished with a 5¾-inch oil string carrying 1,130 feet of perforated, came in under a natural flow doing 3,875 bbls. of clean 30.1 gravity oil and 2,600,000 feet of wet gas daily. This new well gauged 1,785 bbls. during the initial 11-hour test. The Richfield also completed No. 3 Bernstein but this well, less than 500 feet away from No. 1 Meader, which came in several weeks ago doing 6,574 bbls. per day, has not yet cleaned up sufficiently to permit an accurate estimate. The General Petroleum finished two new wells but neither registered exceptionally large production. No. 5 Clock came in under a natural flow doing 1,250 bbls. of 30.1 gravity oil daily from 6,937 feet, while No. 3 Mission showed an initial of 260 bbls. of clean 29.1 gravity oil daily from 6,090 feet. The Continental Oil Co. finished No. 1 Denio, a new well in the shallow zone at 5,536 feet, from which depth it came in under a natural flow making 530 bbls. of 30.2 gravity oil daily. The State company recompleted its No. 1 Bradbury, a deep test located in the Los Cerritos area, late in the week and while it showed an initial of 310 bbls. daily from 7,630 feet, it was temporarily killed to run in tubing. The Shell plugged back its No. 4 fee from 7,988 feet to 7,610 feet and it has just been returned to production flowing 1,225 bbls. daily. Three rigs were destroyed by fire in the town lot area at Long Beach late in the week and about 10 other wells were forced to temporarily suspend production, when overflow oil from a lease tank of the Peacock Oil Co.'s No. 3 Aitken became ignited and destroyed this rig together with No. 30 Marine of the California Eastern Oil Co. and one of George F. Getty's adjacent producers.

Ventura Avenue

The Associated Oil Co. successfully completed two new wells in the Ventura Avenue Field and they will probably be followed into production by several more. On the Lloyd property, No. 52 was brought in flowing 1,610 bbls. of 30.1 gravity oil and 1,150,000 feet of wet gas daily from 7,336 feet, the hole being finished with a 6⅝-inch oil string. No. 8 Ventura Land & Water was finished at an even 7,500 feet, from which depth it showed an initial daily production of 890 bbls. of 29.8 gravity oil and 550,000 feet of natural gas daily. No. 11 Hartman, which was finished a few days ago at 7,513 feet, will probably be tanking oil within a few days as the crew was putting on flow connections. The Petrolem Securities and Shell should also chalk up a new well or two within 10 days. No. 8 Ventura Land & Water, which the Associated successfully finished this week, is of special significance because the upper part of the lower horizon has been cased off and the well is producing from only the bottom, 1,625 feet, exclusively. A similar experiment, which contemplates the exclusion of the upper part of the lower zone is being conducted with No. 7 on the same lease but this well is not scheduled for completion until the end of the month.

The Richfield Oil Co.'s No. 1 Miley Hobson, a deep test in the Rincon Field of Ventura County, is temporarily held up with mechanical trouble due to a stuck drill pipe which froze with a core barrel on the bottom. This well, the first real deep conclusive test to be drilled in the Rincon Field, had definitely cored a promising oil sand and operators were keenly watching the outcome of further work as the upper zones in this area will never pay out. The crew will probably begin circulating with oil in an attempt to loosen the fish which has been holding up progress for several days and, while the outlook is favorable for an early recovery this type of work is not always productive of satisfactory results. The Elmer Oil Co. has logged several streaks of oil sand in its No. 1 Shoals, located a little over a mile northwest of production in the Rincon Field and while commercial production is not definitely assured by any means, the showings found between 3,800-56 feet are regarded as unusually promising.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S-T-R	Depth	Status
Ring Pet. Co., No. 1 Inglewood, Los Angeles Co.	28- 2-14	4,352	suspended
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26- 1-12	4,420	suspended
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25- 1-12	3,081	sd. sh. drilling
World Pet. Corp., No. 1 Bell, Los Angeles Co.	22- 3-12	2,915	suspended
Associated, No. 1 Taylor, Los Angeles Co.	33- 2-12	4,850	sd. sh. drilling
Empire Drlg. Co., No. 1 Bell, Los Angeles Co.	14- 2-12	4,502	suspended
Continental Oil Co., No. 1 La Mirada, Los Angeles Co.	10- 3-11	4,001	hd. sd. drilling
Shell, No. 2 Mission, San Fernando	4- 2-15	5,024	gr. sd. drilling
Andrews, Otis, No. 1 Lancaster, Los Angeles Co.	23- 8-13	2,080	suspended
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13- 3-13	5,333	suspended
Richfield, No. 1 Maywood, Los Angeles Co.	13- 2-13	150	sd. drilling
Harding, A. B., No. 1 Watts, Los Angeles Co.	17- 3-13	579	water trouble
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19- 1-17	2,982	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25- 3-17	1,008	suspended
Mallory, Ellis, No. 1 Manhattan, Los Angeles Co.	30- 3-14	125	suspended
Pomona Oil Co., Well No. 1, Los Angeles Co.	32- 1- 8	1,075	clean. out
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	fishing
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9- 2-10	2,364	sd. sh. drilling
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32- 5-17	1,214	hd. sd. drilling
The Texas Company, No. 1 Anaheim, Orange Co.	35- 4-10	Rig	rigging up
Bastanchury Ranch Co., Well No. 1, Orange Co.	21- 3-10	Rig	rigging up
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	3,255	recemented
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18- 6-10	1,516	gr. sd. drilling
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23- 7- 3	931	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,051	hd. sd. drilling
Davenport O. & G. Co., No. 1 San Marcos, San Diego Co.	10-12- 2	862	hd. sd. drilling
Turner, S., No. 1 Escondido, San Diego Co.	25-12- 2	1,600	cemented
Torrey Pines Oil Co., Well No. 1, San Diego Co.	18-14- 3	1,974	suspended

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Milham Expltn., No. 1 Kettleman, Kings Co.	2-22-17	7,235	4,000 bbls.
Bolsa Chica, No. 1 Kettleman, Kings Co.	20-25-19	3,502	suspended
California Oil Co., No. 1 Kettleman, Kings Co.	12-23-19	Rig	suspended
General Pet. Co., No. 2 Schaner, Kettleman Hills	26-22-18	6,755	cleaning out
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	3,140	bl. sh. drilling
Monocline Dev. Co., Well No. 1, Kettleman Hills	7-21-21	4,308	suspended
McPhail, Hugh, Well No. 1, Kettleman Hills	13-24-18	2,100	suspended
California Western Oil Co., No. 1 Elkins, Ventura Co.	28- 4-19	2,951	testing
Exline, Emma, No. 1 Saticoy, Ventura Co.	33- 3-21	2,412	fishing
Ohio Oil Co., No. 1 Saticoy, Ventura Co.	32- 3-21	Rig	rigging up
Standard, No. 5 Saticoy, Ventura Co.	1- 3-22	3,160	hd. sd. drilling
Petroleum Secs., No. 1 Diablo, Ventura Co.	26- 5-18	6,320	hd. sd. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33- 2-20	561	hd. sd. drilling
Star Pet. Co., No. 2 Canet, Ventura Co.	13- 3-23	6,775	suspended
Shell, No. 1 Grubb, Ventura Co.	26- 2-22	5,310	cleaning out
Bolsha Chica, No. 1 Temescal, Ventura Co.	3- 4-18	Mtl.	building rig
Miley, E. J., No. 2 Casitas, Ventura Co.	12- 3-21	785	sd. sh. drilling
Shell, No. 2 Berlywood, Moorpark	33- 3-20	7,246	suspended
Continental, No. 1 Sulphur Mountain, Ventura Co.	21- 4-22	2,300	redrilling
Continental, No. 2 Sulphur Mountain, Ventura Co.	22- 4-22	2,736	cemented
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-28-23	4,662	gas well
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,730	gas well
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-28-23	2,694	gas well
Milham Expltn., No. 4 Buttonwillow, Kern Co.	6-28-23	2,670	gas well
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-28-23	2,590	gas well
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-28-23	2,676	gas well
Milham Expltn., No. 7 Buttonwillow, Kern Co.	6-28-23	2,720	suspended
Milham Expltn., No. 8 Buttonwillow, Kern Co.	16-28-23	3,125	hd. sd. drilling
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-29-24	4,291	suspended
South. Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-28-23	4,272	suspended
South. Calif. Gas Co., No. 2 Buttonwillow, Kern Co.	27-28-23	Rig	suspended
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-26-22	4,150	sd. sh. drilling
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-30-23	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-30-23	4,500	suspended
Pacific Eastern, No. 3 Union Ave., Kern Co.	6-30-28	4,443	gas, shut in
Pacific Eastern, No. 4 Union Ave., Kern Co.	6-30-28	5,450	abandoned
Pacific Eastern, No. 5 Union Ave., Kern Co.	5-30-28	4,991	suspended
Stabler, W. W., No. 1 Comanche Point, Kern Co.	23-32-29	2,860	fishing
General Pet., No. 3 Edison, Kern Co.	5-30-29	746	hd. sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29-29-30	775	hd. sd. drilling
Delzel, S. A., No. 1 Delano, Kern Co.	4-26-27	3,116	suspended
Pacific Coast Oil Co., No. 1 Rio Bravo, Kern Co.	15-29-25	42	cemented
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-28-25	3,415	sd. sh. drilling
Standard, No. 1 San Emidio, Kern Co.	35-11-22	2,319	hd. sh. drilling
Union, No. 1 San Emidio, Kern Co.	5-10-21	Mtl.	building rig
Fresno Madera Oil Co., No. 1 Clovis, Fresno	18-12-21	4,194	suspended
Currency Pet. Co., No. 1 Vineyard, Fresno Co.	28-13-14	116	sd. drilling
Union, No. 1 Huasna, San Luis Obispo	34-32-15	3,085	br. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	2,022	br. sh. drilling
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	3,120	br. sh. drilling
Sequoia Oil Co., Well No. 2, San Mateo Co.	15- 7- 5	1,605	suspended
Sunset Pacific, No. 1 Saratoga, San Mateo Co.	13- 7- 4	Rig	suspended
Shell, No. 2 Cowell, San Mateo Co.	8- 6- 5	3,694	testing
Shell, No. 1 Butts, San Mateo Co.	16- 6- 5	3,342	suspended
Shell, No. 3 Petaluma, Sonoma Co.	8- 5- 7	971	hd. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9- 3- 3	1,350	suspended
Foster & Hammill, Well No. 1, Alameda Co.	21- 3- 3	Rig	suspended
R. Y. Hanlyn, Well No. 1, Alameda Co.	3- 5- 2	334	hd. sd. drilling
Standard, No. 1 Lompoc, Santa Barbara Co.	....	Rig	rigging up
Standard, No. 1 Arguello, Santa Barbara Co.	1- 4-34	....	location
Tepesquit Oil Co., Well No. 1, Santa Barbara Co.	3- 9-32	2,710	suspended
Becker, George F., No. 1 Summerland, Santa Barbara Co.	33- 4-25	3,060	suspended
Continental, No. 1 Carpenteria, Santa Barbara Co.	33- 4-25	1,950	hd. sd. drilling
Southwest Prod. Co., Well No. 1, Santa Barbara Co.	2- 4-28	1,625	cemented
Colus Oil Co., Well No. 1, Colus Co.	31-15- 4	380	redrilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-15- 5	400	hd. sd. drilling
Superior Oil Co., No. 1 Calivada, Colusa Co.	31-15- 4	1,911	suspended
Marland Oil Co., No. 1 Bradley, Monterey Co.	32-24-11	4,861	abandoned
North Counties Oil Co., Well No. 2 Humboldt Co.	36- 2- 1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6- 2- 1	3,041	redrilling
Kuhns, H. L., Well No. 1, Merced Co.	9-12- 9	1,520	hd. sd. drilling
Tuck, J. W., Well No. 1, Santa Clara Co.	9- 8- 1	600	suspended
L. A. Madera Synd., Well No. 2, Madera Co.	21-10-17	2,750	hd. sd. drilling

GASOLINE TAX DIVIDEND

The tax on gasoline paid by automobile drivers in the United States brought in a total of $258,000,000 during 1927, or about $368 for every mile of paved roads in America, according to a recent analysis. Of this, $182,000,000 was spent on state highways; $55,400,000 went to local roads; $10,000,000 was apportioned to state and country road bond pavements and the remainder for collection costs and incidentals.

Wayne County, West Virginia Gets Play

Test in Huntingdon County, Eastern Pennsylvania, Down 500 Feet. Zanesville, Ohio, Reports Wildcat Good for 200 Bbls.

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Nov. 12.—Since the Eastern fields were last reviewed, developments have been featureless, with fewer wells and less new production than for any week in a great many months. The average size of the wells was small and of little importance as to location. Weather conditions have been favorable for field work and there is a good deal of new work under way and starting. There is perhaps more new work starting than at any time during the year, but for the most part located in defined territory. For this reason it is not regarded as important as nothing better than light pumpers can be expected.

Near Zanesville, Ohio, a well was reported drilled into the Clinton sand and the report further stated it is good for 200 bbls. a day. The report has not been confirmed, but if true it seems to indicate a new Clinton sand pool has been discovered. The Clinton sand formation is quite reliable and usually has length and breadth, but is expensive to drill. For a number of years it has been furnishing more new production than any other in the Eastern fields.

Southeast Ohio

In the SW of Section 24, Pike Township, Coshocton County, the Leonard Oil & Gas Co. completed and shot in the Clinton sand No. 3 on the W. D. Powers farm. It produced 56 bbls. the first 24 hours.

In Section 39, Bethel Township, Monroe County, J. C. Carner has completed a second test on the Alie Beardmore farm, a very light gasser in the Big Injun sand. In Ohio Township, Meigs County, the Wehrle Co. had like luck at a test on the David Denbo farm.

In Perry Township, Muskingum County, 8 miles west of Zanesville, the Zanesville Oil & Gas Co. is reported to have completed in the Clinton sand a test on the William McKnight farm good for 200 bbls. a day. If this is a producer, it is the first found in the Clinton sand in that locality.

In the SE of Section 16, Harrison Township, Perry County, R. C. Miller and others have completed and shot in the Clinton sand a test on the J. M. Blue farm. It produced 18 bbls. the first 24 hours.

In Brown Township, Vinton County, the Athey Drilling Co. has a Clinton sand duster at a test on the George Dryer farm. In Section 19, Aurelius Township, Washington County, Elmer Wickens has a very light pumper at No. 4 on the Henry Wickens farm.

In Lot 6, Section 16, Chatham Township, Medina County, the Oko Oil & Gas Co.'s No. 18 on the T. W. Brinker farm is a 10-bbl. pumper. In Sutton Township, Meigs County, the Pure Oil Co. has started to drill tests on the Homer Holter and John V. Hanson farm.

In the NW of Section 10, Fallsbury Township, Licking County, the Emerald Petroleum Co. completed and shot in the Berea grit No. 9 on the G. W. Chapin farm, good for 7 bbls. a day. In Section 2, same township, the Margaret Oil Co. completed a duster in the same formation at No. 3 on the Reuben A. Rinehart farm.

Athens County

Three miles north of Canaanville, Section 18, Canaan Township, Athens County, C. F. Cox has completed in the Cow Run sand a test on the Lena Bean farm. It is showing for a very light pumper. One mile north of Amesville, Section 33, Berne Township, the Curtis Farm Oil Co. has a 3-bbl. pumper in the Peeker sand at No. 5 on the E. C. Curtis farm.

In Section 10, Bethel Township, Monroe County, Otto Spangler & Co. have completed No. 23 on the Henry Swartz farm. It is a 3-bbl. pumper in the second Cow Run sand. In Section 11, Sutton Township, Meigs County, Joseph McGhee has completed in the Cow Run sand No. 5 on the H. B. Carnahan farm. It is a duster.

West Virginia

In McKim district, Pleasants County, D. French and others have completed a test on the Earl Cunningham farm. It is a very small gasser in the Big Injun sand. In DeKalb district, Gilmer County, the South Penn Oil Co. has cleaned out and shot its second test on the Weaver heirs' farm and increased its production from 1 to 10 bbls. a day. In Center district, the Chartiers Oil Co. has completed No. 11 on the Daniel Huffman farm. It is a 10-bbl. pumper in the Maxon sand.

In Cameron district, Marshall County, the Manufacturers Light & Heat Co. has a duster on the Levi Phillips farm. It has been abandoned. In Clay district, Wetzel County, the Carnegie Natural Gas Co. has drilled deeper a test on the F. M. Wade farm. It is a gasser in the Gordon sand.

In the Highland Pool, Clay district, Ritchie County, James Deems and others have completed in the Keener sand a tract on the F. L. Hamilton farm good for 5 bbls. a day. On Tanners Creek, DeKalb district, Gilmer County, the Hope Construction & Refining Co. cleaned out and shot No. 1 on the R. L. Weaver farm, increasing its production from 4 to 15 bbls. a day.

More Gassers in Boone County

In Sherman district, Boone County, the Owens Bottle & Machine Co. has completed in the Big Injun sand No. 16 on the Peytonia Coal & Land Co.'s tract and is a gasser good for 250,000 feet. In Washington district the same company has a similar gasser on the Thomas Miller farm. In Sherman district, Miller, Lang and others have a light gasser at a second test on the George R. Alderson farm. In Crook district, the Yawkey Oil & Gas Co.'s No. 8 on the Pond Fork Coal Co.'s tract is good for 750,000 feet.

In Elk district, Kanawha County, the Ohio Fuel Oil Co. shot in the Squaw and Weir sands an old test on the John G. Shirkey heirs' farm. It is a light gasser. On Elk River, Big Sandy district, S. H. Hall and others have completed in the Big Injun sand a test on the J. V. Dorrick heirs' farm. It is a gasser good for 500,000 feet.

On Sugar Run of Spring Creek, Spencer district, Roane County, Denver Camp and others have completed a test on the A. M. Hersman farm. It is a wildcat and is good for 250,000 feet. On Indian Creek, Murphy district, Ritchie County, T. H. Satterfield has completed a test on the Morris-Grim farm. It is a gasser in the Big Injun sand good for 500,000 feet.

Hopeful in Wayne County

Operators are still hopeful of finding something better than has been discovered in Wayne, a lower West Virginia County. On Right Fork of Camp Creek, Stonewall district, Meabon & Huffman have completed a test on the Thomas Griffin farm. It is a gasser in the Big Injun and Big Lime formations good for 700,000 feet.

On the headwaters of Greggton Creek, Butler district, Wayne County, the Chartiers Oil Co. has completed in the Berea grit a test on the Oliver Viers farm, estimated to be good for 4 bbls. a day. The location is 2,200 feet south of the company's test on the Benjamin Honks farm. The Chartiers Oil Co. has been the most aggressive operating company in Wayne County and holds leases on a large acreage.

Clay County

On Laurel Creek, Henry district, Clay County, the United Fuel Gas Co. has drilled a well on the Brown, Swan & Goshorn tract through the Big Injun sand. It is 1 mile in advance of developments and is a light gasser. In Mannington district, Marion County, the South Penn Oil Co. has drilled down from the Big Injun to the Fifth sand an old well on the Miller Tennant farm. It is a gasser.

On Big Road Camp run, Spencer district, Roane County, the Federal Oil & Gas Co. completed in the Big Injun sand a second test on the L. C. Vansee farm. It is a very light gasser. In Sheridan district, Calhoun County, the Hope Natural Gas Co. has a gasser in the same formation on the Elsie Chaney farm.

In Center district, Gilmer County, the Steer Creek Oil & Gas Co. has a gasser in the Big Injun sand at No. 7 on the C. D. McClenahan farm. In Grant district, Wetzel County, the Silver Hill Oil & Gas Co. has a duster in the Gordon sand on the Simon Frei farm.

Gassers in Calhoun County

In Sherman district, Calhoun County, Godfrey L. Cabot has a Big Injun sand gasser at No. 3 on the Cordelia Garrison farm. In the same district, the Carnegie Natural Gas Co. has a gasser at No. 3 on the R. F. Bennett farm. On Plum run, same district, Weinrick and others have completed a test on the John Wolfe farm, a fair gasser in the Big Injun sand. On Walnut run, Smithfield district, Roane County, the Ohio Valley Gas Corp. has the rig completed for another test on the L. Morris Perot, Jr., farm.

In Hackers Creek district, Lewis County, the Standard Gas Co. has drilled its test on the Alonzo Allman farm through the Benson sand to a total depth of 4,180 feet. It is a light gas well in the Benson sand. The same company has a rig up on the Swisher heirs' farm. In the same district, the Carnegie Natural Gas Co. has a good Maxon sand gasser at a second test on the Anna L. Jackson farm. The C. & A. Gas Co. is drilling deeper on the Sarah Waggoner farm and is now down 3,500 feet. The McCall Drilling Co. has a rig up on the Leman B. Huff farm. In Meade district, Upshur County, the Laurel Rock Oil & Gas Co. has a rig up on the M. C. Brake farm. In Skin Creek district, Lewis County, the Mid-Penn Oil Co. is drilling a test on the J. P. Cole farm.

In Center district, Calhoun County, W. H. Bickel has completed a rig on the James Shanks farm. The Gerwig Koethe Gas Co. has a rig up on the T. A. Hardman farm. In Sherman district, the Hope Construction & Refining Co. has cleaned out and is drilling deeper a test on the Okey Parsones farm, formerly a gasser in the Big Injun sand, and now a light pumper. On McFarlan Creek, Murphy district, Ritchie County, the Daniel O'Day Estate and others have a rig completed on the Wesley and George Baker farm.

Ritchie County

In Grant district, Ritchie County, Rexroad & Hendershot have completed a second test on the I. L. Cochran farm, good for 15 bbls. a day in the Maxon sand. In Murphy district, Hardman & Co.'s test on the J. Wolf farm is a gasser in the Big Injun sand. In the same district, W. H. Satterfield's second test on the Grimes-Morris farm is a gasser in the same formation. In Union district, the Imperial Oil Co. has a gasser in the Keener sand on the J. W. Mason farm.

In Cameron district, Marshall County, the Manufacturers Light & Heat Co. has completed a second test on the Levi Phillips farm. It is dry and abandoned. In the same district, the Carnegie Natural Gas Co. has a gasser in the Gordon sand at a test on the B. L. Frye farm.

In Sherman district, Calhoun County, W. H. Bickel has rig material at a location on the G. C. Burrows farm. In Center district, G. L. Cabot has rigs up on the L. Taylor and Charles Harris farms. In Sheridan district, a location has been made on the L. M. Morrison farm. In Union district, Ritchie County, S. W. Young is drilling his second test on the D. J. Dichards farm from the Maxon to the Big Injun sand. On Triplett run, Spencer district, Roane County, Grow & Decker have the rig completed for a second test on the I. N. Morford farm. In DeKalb district, Gilmer County, the Hope Construction & Refining Co. has drilled its test on the R. L. Weaver farm deeper and increased its production from 1 to 10 bbls. a day.

In Southwest district, Doddridge County, the Pittsburgh & West Virginia Gas Co. has started to drill a second test on the P. Brannon farm. On Garva Creek, Liberty district, Marshall County, the Manufacturers Light & Heat Co. has the rig completed for a second test on the D. T. Murphy farm. On Big run, same district and county, the Cameron Light & Heat Co. has a rig up on the Hannah Strickland farm.

Lincoln County

In Carroll district, Lincoln County, the Cambridge Gas Co. is rigging up on the Adam King farm. In the same district, the United Fuel Gas Co. is rigging up on the G. W. Oxley farm. In Meade district, Tyler County, the Ohio Oil Co. is due in the sand on the Gifford Dudley heirs' farm. In Grant district, Wetzel County, the Carnegie Natural Gas Co. has a rig up on the Lee Glover farm.

On Poca run, Poca district, Kanawha County, the Chartiers Oil Co. has the rig completed for a test on the W. H. Painter farm, 1,500 feet west of the same company's test on the J. F. Haynes farm.

In Ten Mile district, Harrison County, C. W. Perine is drilling deeper a Maxon sand gasser on the Charles Lanhan farm. In the same district, Lester Weaver and others have a rig up on the William Layfield farm. In the same district, the Hope Construction & Refining Co. has a rig up on the Evaline Lantz farm.

In Liberty district, Marshall County, the Cameron Heat & Light Co. has made a location on the Hannah Strickland farm. In Center district, Wetzel County, the Myers Oil & Gas Co. has started to drill on the George M. Myers farm. In Clay district, the Carnegie Gas Co. is rigging up on the F. M. Wade farm, to drill deeper. In Liberty district, Marshall County, the same company is rigging up on the T. D. Conway farm. In Grant district, Cabell County, the Harshbarger Oil & Gas Co. is rigging up on the J. B. Cline farm.

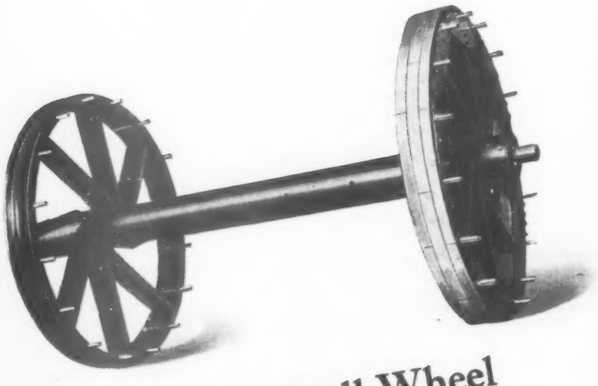
Southwest Pennsylvania

In Wayne Township, Green County, the Manufacturers Light & Heat Co. has a gasser in the Bayard sand at a test on the Sarah A. Cole farm. In Morris Township, Nuss & McClay are rigging up on the B. Morris farm. In Richhill Township, the Staggers Oil & Gas Co. is drilling to the lower sands a test on the Peter Staggers farm. In Springhill Township, the Stonehouse Oil & Gas Co. is drilling a test on the Malinda Potts farm. In Jackson Township, Milliken & Hoskinson are due in the sand on the

(Continued on Page 123)

Use the Moore

Moore Heavy Duty Steel Bull Wheel



Light Type Bull Wheel

7′ 6″ diameter. Steel shaft 13″ @ 48.73 lbs. Gudgeons 13′ 6″ shoulder to shoulder. Trunnions 5″ diameter x 6″. 8-spoke wheels with 9″ brake face. Hickory hand pins.

Spoke Construction

Flanges of spokes are trimmed to facilitate assembly. Spokes are tangent, giving direct pull on the shaft. Shaft is shrunk on and gudgeons riveted.

BULL WHEEL

for HEAVY DUTY

It will transmit a maximum of power and give long continuous service. The heavy shaft is heated and shrunk over the gudgeons, which are securely riveted in place. One-piece rolled steel tug rim with double V groove tug. Spokes are tangent to the shaft and the flanges of the spokes are trimmed for easy assembly. Standard wheels; 13′ 6″ shoulder to shoulder; either 16″ or 18″ diameter shaft with ½″ wall; 5″ diameter x 6″ trunnions; 9″ or 12″ face brake wheel; one divider and 32 hickory hand pins.

Moore Heavy Duty Steel Bull Wheels conform to A. P. I. dimensionals standards.

for PUMPING SERVICE

This is an economical light type steel bull wheel for shallow drilling, cleaning out and pumping service. After drilling, it may readily be substituted for the standard wheel as it has a shaft of same length and trunnions of same size. The shaft is heated and shrunk on the gudgeons before riveting. Moore wing plate construction with tangent spokes. Double V groove tug.

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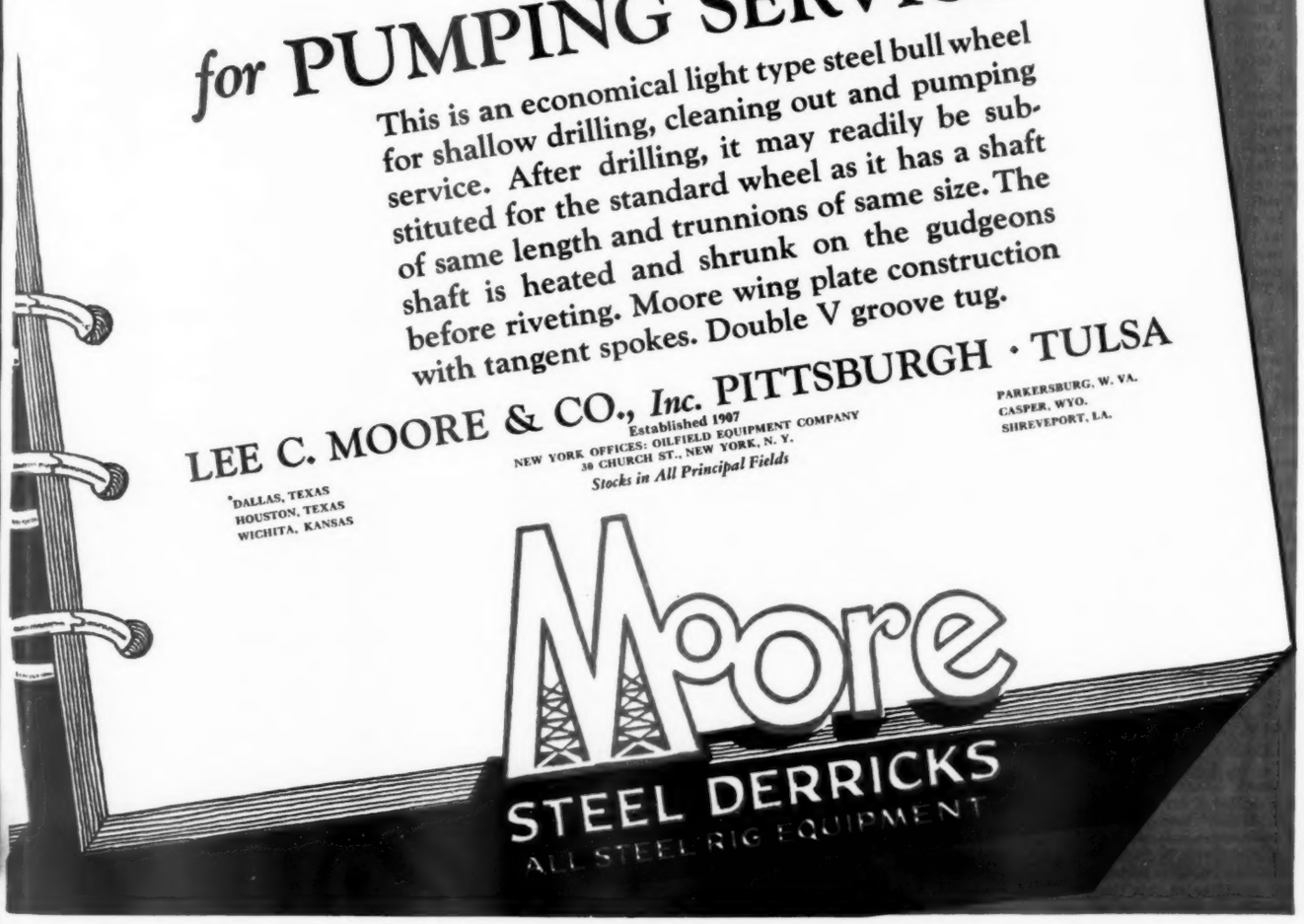

New Development in Kentucky Field

More Activity in Daviess and Ohio Counties. Small Producing Wells Only Result in Most of the Districts

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Nov. 12.—New development work is rapidly spreading over Kentucky, and while there were not so many completions, more new wells are drilling, due to the nearness of the winter season, when it is almost impossible to get material transported over the mud roads and among the hills. There is more activity in the Tri-County Field of Ohio, Daviess and Hancock Counties, in the western division of Kentucky, than at any other time in its history. The field has been extended and several new pools have been opened and are being rapidly developed. Especially is this true around the Fordsville and Reynolds areas of Ohio County, as it is estimated that there are 40 rigs running in those two sections alone. Close to a dozen strings are running in the Jones Pool, to the southwest of Whitesville, with at least a dozen in the Red Hill Field, both being in Daviess County. Both of these pools are proven territory, of course, and the same applies to the Utica Pool in the same county, there being around 10 strings running in the Utica area known as the Brown Pool. These comparatively new locations do not account for the older pools that are being operated over all three counties. Large wells were a scarcity in any of the pools since the last review.

Some leases and producing properties are changing hands. The latest is a sale of a one-sixth interest in the lease developed by the Creek Drilling Co. on the Alvey Tylor farm or 56 acres in the Hayden Pool, in Daviess County. This one-sixth interest was owned by Hugh Randall, sold to the Three Sands Oil Co. for a consideration of $20,000. Perry A. Rowe sold a one-sixth in the same lease to the Three Sands Co. for $25,000, and a short time ago Miller and Damron of the Creek Drilling Co. sold a one-third interest to the same parties for $36,000, making a total paid by the Three Sands Co. for a two-thirds interest $81,000. Miller & Damron maintain the other third interest. The Three Sands Oil Co. has its chief offices in Terre Haute, Ind., and Tulsa, Okla. There are six wells on the Tyler lease. Alvey Tyler bought this 56 acres two years ago for $1,000 and has drawn from his royalty of one-eighth several thousand dollars. The original lease was bought by Perry Rowe and Hugh Randall, together with R. D. Baker, a year and a half ago, in connection with a lot of other leases.

Eastern Kentucky

Hupp and Duff, well-known operators of Lexington, Ky., have just purchased the Short Fork Oil Co.'s property in Magoffin County of 13 wells with a settled production of 30 bbls. The leases are known as the H. H. May and J. M. Frazier and lie 1 mile south of Rockhouse Branch, where Hupp and Duff have the B. F. Whitt and other leases on about 1,000 acres.

In District 30, Red Bush Field of Morgan County, the Boston-Southwestern Oil & Gas Co.'s No. 15 on the Frank Conley farm, is a 15-bbl. initial producer.

In Owsley County the Petroleum Exploration Co.'s No. 1 on the C. T. Gabbard farm shows 368,000 feet of gas. This company drilled a dry hole in No. 3 on the S. H. Hurst farm in Breathitt County. Same company is drilling two tests in Clay County. One is on the Keith-Campbell lease, which is expected to be rigged up and spudding at this time, and No. 1 on the Robert Cupp farm, on Little Goose Creek, about 5 miles northwest of Manchester.

A summary of the week's work in the Kentucky fields show 28 completions, 16 producers with an initial production of 134 bbls., 9 dry holes and 3 gas wells.

County—	Oil Comp.	wells	Prod.	Dry	Gas
Barren	13	11	82	2	0
Daviess	5	1	5	3	1
Ohio	4	1	5	2	1
Johnson-Magoffin	1	1	25	0	0
Morgan	1	1	15	0	0
Allen	1	1	2	0	0
Owsley	1	0	0	0	1
Breathitt	1	0	0	1	0
Hardin	1	0	0	1	0
Total	28	16	134	9	3

Western Kentucky

Small producing wells are the result of the drill in all parts of Kentucky since the last review. Much of the work done was on the wildcat order and the production failed to show any increase in the entire western area. Many operators are making preparations for winter by hauling in supplies to take care of the bulk of the work that will be done, realizing that the condition of the roads will mean little can be moved over them.

Barren County Wells

The old Glasgow Field in Barren County is once more bringing in a few wells, although they are usually small. The Lecta Pool, southeast of Glasgow, is furnishing the larger amount of the work. In this pool the Sampson Oil Co.'s No. 15 on the Browning farm pumps 20 bbls. a day, while the Esslinger Oil Co.'s No. 15 Glass farm is reported at 5 bbls. Hunt and Leach's No. 7 Browning is good for 10 bbls. and V. G. Taylor's No. 31 Browning is good for 15 bbls.

In the same pool, George L. Porter's No. 1 Hickerson farm is a 2-bbl. pumper and No. 3 proved to be a dry hole. R. B. Tyler's No. 5 Slaughter farm, in the Emery Moore Pool, is good for only a fraction of a barrel, while Stohr Brothers' No. 13 L. Heckathorn farm is a 3-bbl. pumper.

In the Gorby Pool, Shelley L. Large has a 10-bbl. pumper in No. 10 on the O. L. Gorby farm, and H. L. Ogle's No. 1 Watt Ellis is good for 4 bbls.

In the Emery Moore Pool, Esslinger, Hamilton and Ott's No. 11 Bradford is a 6-bbl. pumper.

In the Coral Hill Pool, Hunt and Leach have a duster in a test on the Smith farm.

Fred C. Moore drilled a deep test in No. 14 on the Moore farm, going to a total depth of 1,067 feet, or 802 feet under the shale, but dry, except in the Yellow Cap formation at a depth of 209 feet, where it is pumping 6 bbls. daily. This well is in the Emery Moore Pool.

Ohio County Wells

H. B. Bastrus completed the only producing well reported from the Ohio County fields, and that was only a 5-bbl. pumper at a total depth of 440 feet. In this hole there is a 420-foot string of casing and pay sand was found from 425 to 435 feet.

Sunnydale Oil & Gas Co.'s No. 1 J. B. Mitchell 100 acres, in the Sunnydale or Dundee area, is a duster. The Creek Drilling Co. found a dry hole in a second test on the T. L. Hickey farm, in the King Pool.

Wood Oil Co., Inc., drilled in a fair gas well on the Westerfield, in the Reynolds Station area.

Daviess County Wells

Daviess County could do no better than Ohio County, as its only producing well was a 5-bbl. pumper drilled by Guy Hazel and others on the Hazel Miller-Aud farm in the Roby Pool. This well is on the east 50 acres, and 600 feet from the north line and 20 from the west line of the lease.

The Kenrock Oil Co.'s No. 2 well, 600 feet from the north and east lines of the Charles Gilmer 54 acres, also in the Roby Pool, showed only slight indications of oil and has been counted as a duster.

In the Red Hill district, Pratt Brothers' second test on the George B. McCamish farm, near the SW cor. of the lease, came in a dry hole.

Thompson and others' second venture on the William Newman farm, north of the Roby Pool and near Pennville, failed to show oil or gas in both the Jett and Barlow sands, but got a heavy gas volume in a strap formation, and it has been capped in to conserve the gas.

The Ohio Oil Co. drilled a duster in a second test on the E. F. Lebold farm, in the Roby Pool.

Scattered Wells

In the Scottsville Field, in what is known as the Settle Pool, of Allen County, White and Pearson's No. 7 on the Jim Williams farm produced 2 bbls. from a depth of 327 feet. There is quite a little drilling play in this pool at this time.

The Petroleum Exploration Co.'s test on the Theodore Paris farm, in Hardin County, south of Louisville, is a dry hole and arrangements are being made to start another on the Eli Dunaway land.

New Geological Maps

Word comes from Frankfort that two new maps for western Kentucky—one for Butler and one for Carlisle—were issued by the Kentucky Geological Survey. The maps are published in black with a blue drainage pattern, at the uniform scale of an inch to the mile. The Butler County map was prepared by the state geologist, Dr. W. R. Jillson, and shows the extent of oil and gas development in that part of Kentucky. Stratigraphic and structural geological sections are also given.

The Carlisle County map is geographic in character, but exhibits all gravels, clays and sand pits. The high water contour of April 20, 1927, where flood conditions prevailed in the lower Mississippi Valley, is shown in blue; drainage is indicated in the same color. The field surveys were executed under the direction of Professor Jillson by R. C. Bishop and A. Montgomery in 1927.

Field Pickups

The Wood Oil Co. has started a test on the R. F. Sands farm, in the Red Hill district of Daviess County, an offset to J. C. Parks lease where L. C. Young has production. Daugherty and others got a showing in a stray sand at a second test on the Salem Davis, in the Red Hill area, but going deeper.

Miller and Damron found the Jett sand dry at their test on the Hansford heirs' farm, southwest of their Tompkins lease at Utica, in Daviess County, and will test out the lower sands, the Brown and Barlow sands. Latest advice is that this well makes a slight showing in the Barlow sand at around 1,200 feet and may develop into a small producer after given a shot and cleaned out. A second well will be started as soon as No. 1 is taken care of.

The operations of the Wood Oil Co. and Doctor Sirman, near Forsville in Ohio County, are attracting much atten-

(Continued on Page 123)

TIFFIN FIELD'S 100-BBL. PRODUCER BEST COMPLETION IN CENTRAL WEST

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Nov. 12.—The leading and most interesting spot in the Central West Field is centered in the Muskegon Field of western Michigan, where both oil and gas wells are coming in with regularity the past few weeks and oil men are invading the new field in hopes to secure a foothold in the way of close-in leases. Outside of Michigan the only field that reported a 100-bbl. producer was the Tiffin Field, in northwestern Ohio. All dry holes were found in the Illinois and Indiana divisions, and while Central Ohio is one of the active developing areas, the wells are comparatively small, although some very good ones are being found from time to time.

In the old Lima Field of northwestern Ohio, in the Murphy Pool in Liberty Township, Seneca County, near Bettsville and Tiffin, a second test drilled by Marshall Brothers 400 feet from the north line and 600 feet from the east line of the August Fleckner farm, on the oil map as the S. Skranswefky farm, in the NW of Section 27, Liberty Township, and about a mile east of the Kimmet lease where good production was found, brought in a 100-bbl. initial producer. Top of sand was found at 1,334 feet, drilled 117 feet into the sand to a total depth of 1,451 feet. This is the best well found recently in this township. The writer was well acquainted with Mr. Skranswefky in the early days of the Lima Field, and he often wondered if some day his land would prove to be oil-producing territory. He was an attorney and well known over the Lima Field. At one time his land was more than an entire section of 640 acres. In the same township, and close to the Kimmet lease, J. H. Witmore and others drilled in their No. 4 well, 250 feet from the south line and 600 feet from the west line of the Dayton Connor, in the NE Section 28, which came in a dry hole. Sand was topped at 1,295 feet and drilled 80 feet in the sand to a total depth of 1,375 feet. This farm adjoins the Kimmet land on the east. In Hopewell Township, same county, Pankhurst and others' test, 250 feet from the north line and 400 feet from the east line of the W. McClure, in the NE Section 13, is only a 1-bbl. producer, with sand at 1,396 feet, and drilled 95 feet in the sand.

Allen County

Northeast of Lima in Bath Township, Allen County, B. L. Carmon and others' No. 3 well, 700 feet from the north line and 300 feet from the east line of the Martha J. Powell farm, Section 12, pumped an initial of 30 bbls. from a total depth of 1,401 feet, or 65 feet in the sand.

In Mercer Countzy, Union Township, Margaret E. Grace's test in the northwest corner of the C. E. Roebuck farm, mapped as the F. Collins farm, in the SE Section 16, pumped 15 bbls. Top of sand at 1,145 feet and drilled 46 feet in the sand. In Washington Township, same county, the Recovery Oil & Gas Co.'s test in the southeast corner of the John Menschofer farm, in the SW Section 23, developed a nice gas pressure and volume at 65 feet in the sand which was topped at 1,100 feet.

Central Ohio

The Central Ohio Field is maintaining its development work from week to week

(Continued on Page 132)

134 reasons for the success of

Prest-O-Lite
DISSOLVED ACETYLENE

32 plants located in important industrial centers throughout the country produce and distribute Prest-O-Lite. In addition, a national chain of 102 warehouses makes Prest-O-Lite readily available wherever the oxy-acetylene process is employed.

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Natural Gas Developments

GALVESTON GAS RATE NOW BEFORE COURTS

GALVESTON, Tex., Nov. 10.—Hearing on a mandamus suit to compel the Texas Cities Gas Corp. to furnish natural gas in Galveston at the 75-cent rate specified by the city commission will be held before Judge J. C. Canty of the Tenth District Court.

Filing of the suit was the culmination of a long contest between the city and the gas company which developed when the company in June, 1927, proposed to bring natural gas into Galveston at a rate of $2.29 for the first 1,000 feet. The company is buying natural gas at Texas City Junction, where its main connects with the trunk line, for 20 cents per 1,000 feet.

Two weeks ago the city commission directed Bryan F. Williams, city attorney, and James W. Wayman, special counsel, to recommend legal action against the company.

Meanwhile the gas company has appealed to the Texas Railroad Commission from a city commission ordinance which specified a rate of 75 cents for the first 1,000 feet, plus a 50-cent service charge, and is furnishing artificial gas at $1.45 for the first 1,000 feet.

VALUATION TESTIMONY IN FORT WORTH CASE

FORT WORTH, Tex., Nov. 10.—P. McDonald Biddison, Monroe, La., the third valuation expert of the Fort Worth Gas Co. to place a valuation of over $6,000,000 on the company's plant in the gas-rate hearing, testified before W. H. Sanford, master in chancery, that the reproduction cost of the plant is $6,555,618.38.

Physical value of the Fort Worth Gas Co.'s plant was set by Biddison at $4,567,192.40. He gave $3,023,805.45 as the reproduction cost of the main distribution system. Depreciation is not considered in any of his figures.

Biddison testified he made a personal observation of the gas mains during his inspection. He stated he found the following average depths of the various sizes of pipe under ground: Two-inch pipe 16.96 inches in depth; 3-inch pipe, 17 inches; 4-inch pipe, 22 inches; 6-inch pipe, 28 inches; 8-inch pipe, 31 inches; 10-inch pipe, 28 inches; 12-inch pipe, 32 inches, and 16-inch pipe, 31 inches in depth.

DOMINION COMPANY PLANS COKING PLANT

CHATHAM, Ontario, Nov. 10.—The Dominion Natural Gas Co., an Ontario subsidiary of the Cities Service Corp., has made a formal offer for the purchase of the municipally owned artificial gas plant at St. Thomas for a price of $500,000.

While the company plans, if the offer is accepted, to supply St. Thomas in part with natural gas from the Tilbury Field, it is planned to supplement this with artificial gas. To this end plans are being worked out for a coking and by-product plant at Port Stanley, to cost $2,000,000.

First steps have been taken in the purchase of the necessary site at Port Stanley. A coking plant will be erected, and gas will be manufactured at this point and mixed with the natural gas at present supplied to the various communities in southwestern Ontario served by the Dominion Natural Gas Co. system. It is claimed that in this way the available natural gas supply in southwestern Ontario can be made to last 30 years, where if natural gas is supplied alone the prospective life of the fields is around 10 years.

S. B. Severson of Buffalo, manager of the company, outlined the project to members of the St. Thomas city council; and has since supplemented this by presenting a written proposition, which will be considered by the St. Thomas municipal authorities.

ELK COUNTY PROPERTIES FIGURE IN TRANSFERS

OIL CITY, Pa., Nov. 10.—Announcement is made of the approval by the Public Service Commission of Pennsylvania of the purchase of certain gas properties located in Elk County by interests affiliated with the National Fuel Gas Co. The Ridgway Light & Heat Co., which supplies Ridgway and Johnsonburg, has been purchased by the Ridgway Natural Gas Co., owned and controlled by the National Fuel Gas Co.

The St. Marys Gas Co., which supplies St. Marys and Emporium, is being bought by the St. Marys Natural Gas Co., which is also a National Fuel Gas Co. subsidiary.

The Sylvania corporation has been formed to take over four companies which have been doing business as the Portland Oil & Gas Co., the St. Marys Oil & Gas Co., Kaul & Hall Oil & Gas Co. and the Service Gasoline Co. The first two are gas producing concerns. Kaul & Hall Oil & Gas Co. holds gas acreage, and the Service Gasoline Co. is a gasoline and oil jobbing concern.

Each of the newly formed companies is to be a separately operated unit.

The directors of the Ridgway Natural Gas Co. and the St. Marys Natural Gas Co. will be: W. J. Judge of New York, George Welker, W. H. Locke, H. S. Rose, G. H. W. Sherman, P. L. Mulkin and J. G. Montgomery of Oil City. The officers will be: George Welker, president; W. H. Locke, vice president, and H. S. Rose, secretary and treasurer.

The directors of the Sylvania corporation will be: W. J. Judge of New York, George Welker, W. H. Locke, H. S. Rose, G. H. W. Sherman, A. C. Burwell and J. G. Montgomery, all of Oil City. The officers will be: George Welker, president; A. C. Burwell, vice president, and H. S. Rose, secretary and treasurer.

The companies involved in the transaction are old concerns, the Ridgway Light & Heat Co. having been formed in 1885.

CONSTRUCTION BEGUN ON LINE TO ST. JOSEPH

Work is now well under way on the construction of the Cities Service Gas Co.'s 12-inch natural gas pipe line from Fort Leavenworth, Kans., to St. Joseph, Mo. The St. Joseph extension will connect with the company's 12-inch line, recently completed to a point on the United State military reservation, cross the government bridge at Fort Leavenworth and traverse a direct route to the Missouri city.

The contract was awarded to Kelley-Dempsey & Co. of Tulsa, Okla., who sublet the construction over the bridge to the Chicago Bridge & Iron Works. The entire line will be of welded construction, and it is estimated this work will be completed about January 1.

The site has been purchased for the new town border measuring station, about one-quarter mile south of the city limits of St. Joseph. The Gas Service Co. recently acquired the distribution property of the St. Joseph Gas Co., which will construct approximately 3,500 feet of 16-inch main line connecting the present distribution system with the new main supply line of the Cities Service Gas Co.

CANADIAN GAS AND OIL ASSOCIATION MEETING

By Victor Lauriston

CHATHAM, Ontario, Nov. 10.—The tenth annual convention of the Natural Gas and Petroleum Association of Canada, held at the Royal Connaught Hotel at Hamilton, was the best attended in the history of the association, with between 175 and 200 delegates.

The business session was opened by President C. E. Steele. Maj. E. Sweet gave a brief report on the activities of the board of directors, and the treasurer's report was presented by S. A. Morse.

Fraternal greetings were extended to the natural gas men by G. W. Allan of Toronto, secretary of the Canadian Gas Association, who foresaw a future of increasing usefulness and prosperity for both the natural and artificial gas industries.

President C. E. Steele in his annual address referred to the increased stability in the natural gas industry, and the better understanding between companies and consumers, that had been achieved in the 10 years of his presidency. He urged service as the keystone of successful gas merchandising.

A valuable paper, illustrated by slides, was given by A. Rathemacher, manager of the refrigeration department of the Consolidated Gas Co. of New York, on "Refrigeration by Gas." "The Budget as Applied to Natural Gas Utilities" was discussed in a paper by D. P. Spencer, assistant secretary of the Dominion Natural Gas Co. of Buffalo.

The papers were followed by an interesting questionnaire on various phases of the natural gas industry, short papers being given by Frank D. Howell, E. C. Steele, W. Brown, George D. Scofield, C. N. Glenny, A. Seeger and T. E. Bassett.

The report of the nominating committee recommended the following slate of officers, which was unanimously approved:

President C. E. Steele, Sterling Gas Co., Port Colborne; first vice president, S. B. Severson, Southern Ontario Gas Co., Buffalo, N. Y.; second vice president, J. A. Richie, Buffalo, N. Y.; secretary-treasurer, S. A. Morse, Union Natural Gas Co., Chatham. Directors, Maj. E. Sweet, Brantford; C. J. Yorath, Calgary; J. B. McNary, Hamilton; G. D. Wickett, Windsor; G. H. Smith, Port Colborne; J. A. McNevin, Chatham. Assistant secretary and assistant treasurer, Joseph McKee, Chatham.

The secretary was instructed to express to the relatives of Mr. Rowley of the Dominion Natural Gas Co. and of J. B. Forker of the Oil Well Supply Co. its regret at the loss of these valued members.

The 1929 convention will probably be held at London, Ontario.

CITIES SERVICE CHANGES

R. E. Brigham, for the past three years chief clerk of the gas production department of the Cities Service Gas Co., was promoted November 1 to the Wichita district, where he will be engaged in scouting and other activities. Mr. Brigham is succeeded as chief clerk by E. C. Cortelyou, who has been doing engineering work in the gas production department for a year. Mr. Cortelyou, who was graduated from Bradley Institute at Peoria, Ill., class of 1925, was selected for the Doherty training school upon graduation and first became identified with the company February 11, 1925. C. C. Haberson, scout in the Southwest Kansas district, was assigned to special duties in connection with the gas production department.

UTAH LINE HEARING

SALT LAKE CITY, Nov. 10.—Public Utilities Commission of Utah had under consideration the application of John McFadyen of Casper, Wyo., and L. B. Deming of Dallas, Tex., for a certificate of convenience and necessity to lay a pipe line for natural gas through several counties in northeastern Utah. This line would originate on Hiawatha Dome, south of Rock Springs, and pass through the southern part of Sweetwater and Uinta Counties, entering Utah just west of Evanston, Wyo. There has been strong opposition by the coal men of Salt Lake City and southwestern Wyoming. Franchises have been granted by Ogden, Salt Lake City and the various counties.

GREAT FALLS RULING WILL BE PROTESTED

CASPER, Wyo., Nov. 10.—The Montana State Public Service Commission, concluding the hearing on gas rates in the city of Great Falls, has handed down an order that the present rate be reduced to take effect immediately. This reduction makes the average price per thousand 45 cents. The schedules compare as follows: Old schedule—First 5,000 feet, 75 cents; next 95,000 feet, 55 cents; next 400,000 feet, 40 cents; next 500,000 feet, 35 cents; over 1,000,000 feet, 32½ cents.

New schedule—First 2,000 feet, 62½ cents; next 98,000 feet, 52 cents; next 100,000 feet, 47 cents; next 100,000 feet, 42 cents; next 100,000 feet, 37 cents; all over 400,000 feet, 32 cents.

The similarity between the rates handed down by the commission and the present rate for natural gas in Billings, Mont., seems to point that the commission examined the Billings gas supply closely and relied upon it as an example. The city of Billings is being supplied through lines from the Wyoming fields and the Rocky Mountain Gas Co. is the operating firm, a subsidiary of the Ohio Oil Co.

Immediately upon hearing of the order, the Chicago office of the Great Falls Gas Co., wired the Great Falls office that the commission's order would be resisted in the courts. President W. A. Baehr of the gas company stated that the commission was unfair in its decision and that the company would take the matter into the courts for final adjustment.

EL PASO FRANCHISE TO TEXAS CITIES GAS

EL PASO, Tex., Nov. 10.—City council has agreed to grant the Texas Cities Gas Co., now distributors of artificial gas in El Paso, a franchise for the distribution of natural gas at a mean basic rate of $1.02 per 1,000 feet. The Texas Cities Gas Co. will pay the El Paso Gas Utilities Co. 34 cents per 1,000 feet for gas delivered to its mains over a 200-mile pipe line to be built at a cost of $3,000,000 from Lea County, New Mexico, or Winkler County, Texas. The figure the council agreed to was 9 cents per 1,000 less than the company first proposed.

GAS FOR KANSAS TOWNS

HUTCHINSON, Kans., Nov. 10.—Hutchinson industries and domestic consumers in Nickerson, Sterling and Lyons, Kans., soon will be connected with a new supply of gas from Wheeler County, Texas. With the completion of two short links now under construction, gas then will be piped to Enid, Okla., and through other lines to the Larutan Fuel Co.'s lines in southern Kansas and northern Oklahoma. This new line is owned by the Consolidated Gas Utilities Co.

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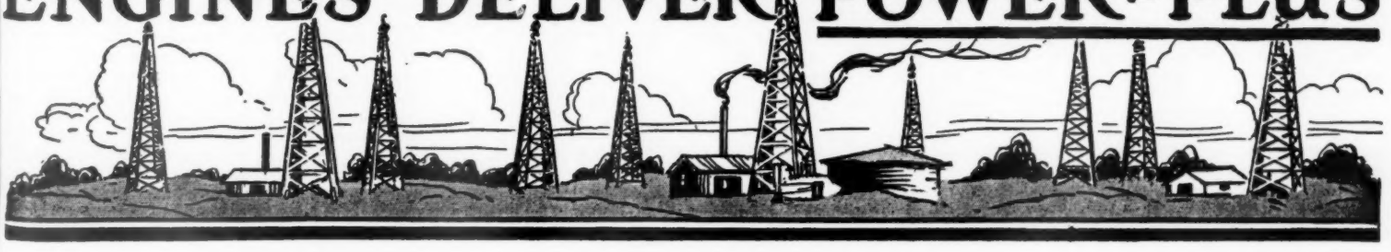

MEN KNOWN IN OILDOM

William E. Hutton

Although he was 83 years old last March 16, William E. Hutton, of Cincinnati, Ohio, vice president and director of the Pure Oil Co., rarely misses a meeting of the directors, where his broad business experience and his knowledge of finance are held in high regard. He has maintained his present official connection with the company since the organization of the Ohio Cities Gas Co. in 1914. Prior to that he was vice president of the Columbia Gas and Fuel Co. till its consolidation with Ohio Cities.

Mr. Hutton was born in Jefferson County, Ohio, and at the age of 18 he moved to Cincinnati, where he spent five years in business. Then came five years of railroad work in Kansas City, Mo. Returning to Cincinnati in 1873 he entered the postal service, later becoming United States Appraiser of Customs. In 1887 he established the brokerage firm of W. E. Hutton & Co. This house now has branch offices in New York, Detroit, Dayton and other cities. Mr. Hutton has served as a director and officer of many important companies. He has been Public Service Commissioner of Cincinnati and president of the Cincinnati Chamber of Commerce and the Cincinnati Stock Exchange.

Two years ago Mr. Hutton dropped most of his active business relationships. Since then he has made a trip around the world and a four-month trip to the Mediterranean. In the future, he declares, he will confine his pleasure trips to the United States, which is without a rival in the world in point of scenic wonders or otherwise.

The title "Colonel," affectionately conferred upon Mr. Hutton by his friends, has become so firmly fixed through long usage that he almost always is addressed and referred to as Colonel Hutton.

PERSONAL PARAGRAPHS

Early Deane of Houston visited San Antonio, Tex., recently.

* * *

Joe S. Cullinan of Houston was a recent visitor to San Antonio, Tex.

* * *

Joe T. King, president of the Kingwood Oil Company of Okmulgee, Okla., is making a trip over the Texas fields.

* * *

S. M. Deckert, research engineer for the Sheldon Machinery Corporation of New York, visited Shreveport, La., recently.

* * *

Harry E. Oliver of Shreveport, La., has been in San Antonio and Southwest Texas looking over the oil possibilities.

John McFayden of Casper, Wyo., vice president and director of the Ohio Oil Company, has been in Chicago on business.

* * *

E. F. Miller, chief geologist of the Reiter-Foster Oil Corporation of Tulsa, Okla., spent a part of this week at Norman, Okla.

* * *

James P. Kem of Kansas City, general counsel for the White Eagle Oil & Refining Company, was in Casper, Wyo., recently.

* * *

J. E. Shaffer of J. E. Shaffer Company has returned to Tulsa from a several weeks' hunting trip to New Brunswick, Canada.

* * *

T. W. Horn, Houston, Tex., independent oil operator, has returned from a pleasure trip and business trip to Cleveland, Ohio.

* * *

Barr W. Musser, production superintendent for the Utah Oil Refining Company at Salt Lake City, visited Casper, Wyo., recently.

* * *

J. W. McCulloch, president of the McCulloch Oil Company of Okmulgee, Okla., has just completed a trip through the Kansas fields.

* * *

Mr. and Mrs. Wynne Merrill and two children have returned via New York to Peru, after spending several months in Petrolia, Ontario.

* * *

W. S. Fitzpatrick, chairman of the board of the Prairie Oil & Gas Company, spent a few days in Tulsa last week and returned to Independence, Kansas.

* * *

Ernest H. Wilcox, for the past five years chief engineer of the Pan American Petroleum Company, has opened offices as a consulting engineer in Los Angeles.

* * *

William G. Heltzel, engineer of the Sinclair Pipe Line Company, whose work has kept him away from Tulsa for some time, returned to his office during the past week.

* * *

A. G. Fidel, purchasing agent for the Midwest Refining Company, has left Casper, Wyo., for California where he will spend some time recovering from his recent illness.

* * *

H. L. Garner and Mrs. Garner are driving from California to Denver where they will make their future home. Mr. Garner is a petroleum geologist and was formerly located in Casper, Wyo.

* * *

Underwood Nazro and W. B. Pyron, vice presidents of the Gulf Production Company, Houston, Tex., have returned from a week's business trip to the home office of the company at Pittsburgh, Pa.

* * *

J. R. Turnbull, chief scout of the Gulf Production Company, Houston, Tex., who has been on a leave of absence several months which has been spent in New Mexico, returned to Houston for a few days.

* * *

Owen J. Roberts, of Philadelphia, has resigned as special counsel for the government in the oil lease cases. Former Senator Atlee Pomerene of Ohio will continue to represent the government in these cases.

* * *

J. W. Steele, supervisor of the United States Geological Survey in Casper, Wyo., is in Denver for examination of a compound fracture of his right arm which he received while on an elk hunt in the Jackson Hole country.

* * *

B. L. Warren of Greybull, Wyo., superintendent of the refinery of the Standard Oil Company of Indiana, was in Casper conferring with Dr. M. G. Paulus, general manager of the company in the Rocky Mountain region.

* * *

E. H. Leslie, formerly professor of chemical engineering at the University of Michigan and consulting engineer with E. B. Badger & Sons Co., of Boston, Mass., is now associated with the University as a nonresident lecturer. Together with A. J. Smith, he has organized a new corporation known as Smith & Leslie, Inc., with its principal office at the Drake Building, Oil City, Pa.

J. Edgar Pew, vice president of the Sun Oil Company, Dallas, Tex., was among the visitors who attended the annual meeting of the Texas Division of the Mid-Continent Oil & Gas Association at Houston.

* * *

Beaumont Parks of Chicago, vice president of the Standard Oil Company of Indiana in charge of manufacturing, has been spending some time inspecting company plants in the Rocky Mountain region, accompanied by Mrs. Parks.

* * *

Fred E. Wood, petroleum engineer with the Midwest Refining Company, has returned to Casper, Wyo., after a trip to Montana. Mr. Wood is now looking after the business of the Northern Oil Company, a Midwest subsidiary in Montana.

* * *

C. M. Schneidau, until recently in charge of the engineering and specialty department of Pelican Well Tool & Supply Company, Shreveport, La., is now in charge of the oil and gas department of Mason Regulator Company, Boston, Mass.

* * *

L. S. Sweeney has resigned as superintendent of the Genasco refinery of the Barber Asphalt Company, Madison, Ill, to remain with the Maple Leaf Oil and Refining Company, Ltd., Coutts, Alberta, with which has been connected since July 1.

* * *

J. A. Bermingham of Fort Worth, Tex., division superintendent of the Texas Production Company in North Central Texas, visited the Wyoming properties of the company in company with R. B. Leggett, superintendent of operations in Wyoming.

* * *

F. W. Burford, vice president of the Crystal Oil Refining Corporation, of Shreveport, La., and president of the Burford Oil Company of Pecos, Texas, has returned to his Shreveport headquarters from Pecos where the company is completing its refinery.

* * *

Mr. and Mrs. E. B. Hutson have returned to Shreveport, La., from a Honeymoon in New Orleans and other Gulf Coast cities. The wedding took place at the home of the bride, who was Miss Aileen Poe, in Lufkin, Tex. Mr. Hutson is a member of the Standard Oil Company geological staff at Shreveport.

* * *

George T. Koch, chief engineer of the Arkansas Natural Gas Corporation, has resigned that position, effective December 1, to return to the Ohio Fuel Company as superintendent of gasoline plants and compressor stations. Prior to joining the Natural Gas & Fuel Corporation at El Dorado, Ark., in 1926, Mr. Koch had been associated with the Ohio Fuel Company for seven years.

* * *

E. B. Reeser, president of the Barnsdall Corporation, with a group of other officers and directors of the company, is in California on an inspection trip of Barnsdall properties on the Pacific Coast. Mr. Reeser was joined in Fort Worth, Texas, last Saturday by M. C. Brush, chairman of the board of the Barnsdall Corporation; Robert Law, Jr., a director; George R. Hamm of Pittsburgh, Pa.; William D. Loucks and G. H. Walker, of New York, directors. The inspection trip will continue for about two weeks. The first shipment of crude by boat from the Elwood properties of the Barnsdall company was scheduled to have been made on Tuesday of this week.

* * *

A. S. Hardin, president of the Southern Crude Oil Purchasing Company, and staff are moving to Fort Worth, Tex., following removal of the company office from Shreveport, La. Among those accompanying President Hardin are P. W. Woodruff, vice president; John Campbell, secretary-treasurer; H. Feltner, assistant to Ridley Wheeler, head of the land department; A. L. Selig, head of the geological department; E. H. Schroeder, chief engineer; W. T. Holmes, chief accountant in the purchasing department; E. L. Guidry, chief counsel; D. Hall, head of the accounting department of the pipe line company; M. L. Ransom of the pipe line company; R. H. Maupin, manager of the traffic department, and R. D. Saunders, purchasing agent. R. W. Wheeler will remain in Shreveport to look after the geological and land activities in the Louisiana and Arkansas districts.

A SAFE DELIVERY
... over an Unsafe Road!

The rain quickly became a deluge, and the river grew to a torrent that rose over the roadbed.

Travel was treacherous.

Yet the team splashed ahead... through the darkness ... knowing the danger of a wrong turn ... but steadily on, until the "Oilwell" equipment was delivered safely. And soon the best producer was running again.

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WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

EQUIPMENT AND SUPPLIES

FOUR DEVICES ADD TO LENGTH OF BELT LIFE

The Happy Belting Co., Tulsa, developed and applied to oil field drives four devices designed to promote belt life and make each belt installation an endless belt, thereby eliminating belt clamps.

An automatic belt contractor is applicable to drives where maximum tractive effort is needed in a minimum floor space. The outstanding advantages of the automatic belt contractor are that it eliminates the necessity of depending upon the oiler or engineer to get what he would term proper tension on the belt through the medium of springs or screw adjustment, often referred to as "dash pots." The principle of this set-up allows use of the term "automatic." It is flexible to the point of allowing the horsepower of the motor or engine to govern the tension of the belt.

A bandwheel power idler imparts automatic tension to the belt in its application to the central pumping power commonly used in the oil fields. Heretofore the tension on the belt has been dependent upon the pumper adjusting the idler by means of a screw. This type drive affords an outstanding example of load variation, inasmuch as the peak load on a bandwheel power is often twice what would be termed an average load. It is impossible to adjust tension when dependent upon the pumper to adjust the idler to meet the running condition, inasmuch as it might be necessary for him to tighten up by use of the screw on the idler when the peak load is being transmitted and adjust accordingly when wells are knocked off throughout the day. The bandwheel power idler provides automatically proper teasion for the belt by means of a weighted tension rather than the use of a screw.

The use of an endless belt on this type drive eliminates the severe twist of the belt between the idler and the bandwheel power, as the back side of the endless belt can be run as pulley side on the idler.

The Type F belt tightener is applicable to beam pumping wells, allowing the use of an endless belt and increasing the arc of contact on the clutch pulley, as well as on the bandwheel, thereby allowing the belt to run with less tension. This tightener operates on the rack-and-pinion principle, being easily adjusted to give proper tension as well as conforming to mis-alignment of the bandwheel.

The company's most recent development is a short center reversing countershaft drive which has just been installed for testing. It allows the application of endless belts on both forward and reverse drives, eliminating crossed belts which have been used heretofore for reversing the load. This is accomplished by the use of two idler pulleys which co-ordinate by the use of a double lever on a fulcrum.

The outstanding feature involved, in addition to elimination of crossed belts, is that it makes the forward main prime mover pulley and belt take care of the reverse drive through the medium of the large idler which rides on the main drive belt. This idler riding on the main forward drive belt is rotating in a reverse direction all the time. This idler (which is moving in a reverse direction) is used as the source of power to take care of reversal, having used a smaller idler pulley to increase the arc of contact of the reverse belt on this large idler pulley, to the point of making it capable of transmitting the necessary horsepower.

Making the main drive pulley take care of the power through the medium of the idler, for reversing, does away with the overhanging second pulley and outboard bearing on engine or motor.

This installation, in addition to the advantages enumerated, will save space in building as well as length of belt, as it uses 8-foot centers instead of 14-foot centers.

REPORT IS COMPREHENSIVE

One of the features of the convention of the International Acetylene Association at the Congress Hotel, Chicago, November 14, 15 and 16, is the report of the oxyacetylene committee of the association. This report is described as the most complete and comprehensive survey of the uses of oxyacetylene welding and cutting ever attempted. The report, which contains about 40,000 words, reviews not only almost countless articles which are fabricated by welding, but also the details of particular interest in connection with the use of these processes in important metal working industries.

NEW MERCO NORDSTROM BOOK

The Merco Nordstrom Valve Co., San Francisco and New York, subsidiary of the Merrill Co., engineers, has just issued a new catalog, No. 6, that is an encyclopedia on valves and lubricants suitable for valve service. It is a substantially bound book of 142 pages, containing illustrations and detailed descriptions of many different types of Nordstrom valves, service cocks, parts, accessories and lubricants, together with tables of sizes and measurements and pictures of installations now in service in the oil and gas industry. As a reference book, this catalog might well be filed by engineers, superintendents, purchasing agents, etc.

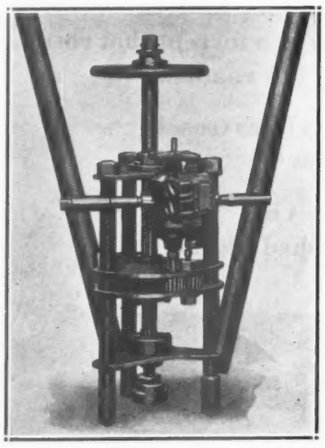
WYATT BUILDING TANK PLANT

The Wyatt Metal & Boiler Works, Houston, Tex., is about to begin construction of a plant in that city for the fabrication of steel plate and metal work. This plant, which will be located on the M.-K.-T. tracks, will have 75,000 square feet of floor space and, together with the Dallas plant of the company, will give a total floor space of over 175,000 square feet.

The Houston plant will be specially equipped with machinery for building the heavy plate work now required in modern refining practice. The company builds tanks of every character from steel plate, also refinery equipment, smokestacks, breechings, air ducts, natural gasoline plants and oil storage tanks.

INSTALLING OF VALVE MADE SIMPLE BY TOOL

One of the features of the Young tank car bottom outlet valve, manufactured by the Hills-McCanna Co., Chicago, is that it can be installed in any tank car equipped with an outlet leg. The tool shown in the illustration was devised to make the installation of the Young tank car valve a simple process. The tool is

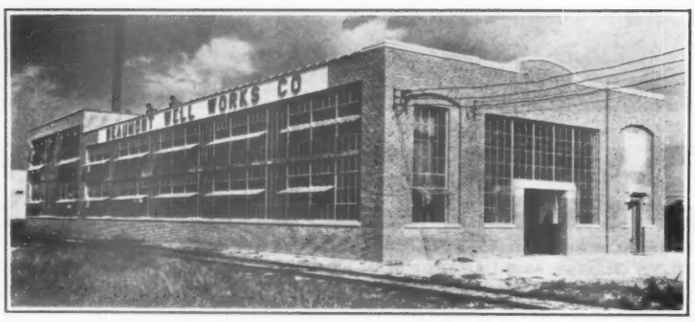


placed inside the tank car and over the outlet. Two of the tool's three legs are placed parallel to one side of the tank and the third leg, which is adjustable, is placed on a line with the other side. This permits the tool to be leveled to the curve of the tank and allows the working side to face the tank end, giving room to operate air motor and adjust chuck.

After the tool has been centered, one of the long jack-rods is placed on the bottom plate of the tool, between the two solid legs and up to the rivets of tank dome. The second jack rod fits against the adjustable leg and up to dome rivets. These are tightened so that the tool is solid.

Then the chamber for packing is drilled out and threaded. The tool is removed and the Young valve installed. Into the drilled chamber is placed first a lower metal packing ring and nonmetallic packing and above this an upper packing ring which is cut with a shoulder. Above this the cage of the valve is screwed down tightly and a dog point screw is set. The valve is closed tightly and the stem measured and cut off three inches above the brackets. The ends are squared. One end of the rod is swedged in the coupling and the other end squared and tapered to receive the bandwheel. The rod above the wheel is drilled for a cotter pin. The Young valve prevents leakage in transit.

NEW HOME OF THE BEAUMONT WELL WORKS CO., INC.



The Beaumont Well Works Co., Inc., which moved into its new home in Beaumont, Tex., was founded in 1913. It manufactures oil, gas and water-well supplies, including fishtail bits, set shoes, drill collars, oil-well strainers, rotary fishing tools and light and heavy forgings. A. L. Eastham is president and H. L. Williams, secretary and treasurer.

TRADE LITERATURE RECEIVED

"Electric Heat in General Electric Factories" is the subject of an interesting 32-page booklet issued by the General Electric Co., Schenectady, N. Y.

"Stockham Fittings for Oil Country Pipe Lines," a 16-page catalog published by the Stockham Pipe & Fittings Co., Birmingham, Ala., is devoted to cast-steel screwed fittings, oil malleable fittings and extra-heavy cast-iron oil pattern fittings.

William W. Nugent & Co., Chicago, have issued a condensed bulletin on their lubricating and filter devices, showing in compact form their complete line of equipment, together with pictures of installations.

"Nuttall Oil Well Pump Gear Units," published by R. D. Nuttall Co., Pittsburgh, Pa., contains a series of bulletins on gear units for oil field service.

The Bristol Co., Waterbury, Conn., is featuring Bristol's long distance electric transmitting and recording system.

The Titusville Forge Co., Titusville, Pa., is mailing bulletins on its Sure Grip Tivan slips, forged-steel bradenheads, spiral cable tool system, forged-steel drilling connections and Tifoco casing shoes and die nipples.

"Cleaning Absorption Towers" is among useful articles in the current number of Oakite News Service, published by Oakite Products, Inc., New York.

PRODUCTION METHODS CHANGE

In the November issue of Commerce Monthly published in the National Bank of Commerce in New York, it is pointed out that changing methods of production have revolutionized the cast iron pipe industry. The magazine says:

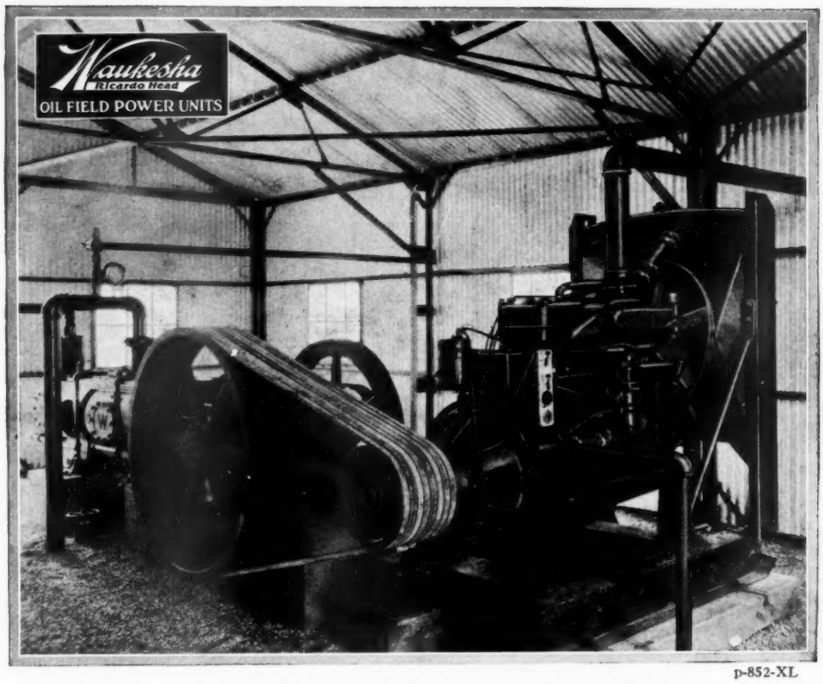
"In very recent years the efforts expended in seeking new and more economical methods of producing cast-iron pipe have been revolutionizing the industry. The net results have been elimination of a large part of the hand labor required under the old sand pit method, a reduction of approximately 25 per cent in the amount of foundry pig iron required and the production of pipe in many respects superior to that cast by the old method."

LANDIS ISSUES NEW CATALOG

Catalog No. 30, prepared for distribution by the Landis Machine Co., Waynesboro, Pa., describes Land-Matic heads, Landex heads, Lanco heads, Landis chasers, Landis chaser grinders, Victor collapsible taps. It covers the company's line of thread-cutting die heads and Victor taps in its 96 pages and contains helpful illustrations, diagrams and tables. The Landis company has catalogs also descriptive of its pipe-threading and cutting-off machines and its pipe and nipple threading machines.

PUMP FOR EXPLOSIVE LIQUIDS

Transferring of liquids of a volatile nature creates danger of fire and explosion. The George D. Roper Corp., Rockford, Ill., has made a new hand transfer pump that is said to be vaporproof, fireproof, and explosionproof. Every part that comes in contact with the liquid being pumped is made up of materials that are nonferrous, nonstatic, and noncorrosive. It is used for transferring highly volatile and explosive liquids, and any other liquid where there is any danger of fire.



p-852-XL

Waukesha Gas Driven Gas Lift Plant at Little River, Oklahoma

On Gas or Gasoline

Why waste, "waste gas?" If you have it and need power, then you want Waukesha Engines. They run equally well on "waste gas" or gasoline. The GAS-POWER MIXER is another achievement of Waukesha engineers in supplying tried and dependable power to oil field production men.

This GAS-POWER MIXER perfectly rations the air to the kind of gas which you may have to burn. The flexibility of these engines running on "waste gas" is just like that which has made them famous in drilling where gasoline instead of gas was used. Buy a Waukesha engine and pay for it with "waste gas" power savings.

"L-Head Engines—They take better care of themselves."

P-866-XL

OIL INDUSTRY EQUIPMENT DIVISION

WAUKESHA MOTOR COMPANY

Waukesha Wisconsin

New York 8 W. 40th St. | Tulsa C. F. Camp Co. | Houston Portable Rig Co. | San Francisco C. A. Watts

Exclusive Builders of Heavy Duty Gasoline Engines for Over Twenty Years

Trend Toward Water Transportation

Improvement of Inland Waterways and Greater Volume of Material to be Moved Add to Its Attractiveness. Combined With Tankwagon

By C. O. Willson

Recent announcements in the refining industry indicate that the coming year will see a continuance of the trend to locate refinery capacity at points strategic from the standpoint of available facilities for water transportation of petroleum products.

The decision of the Empire Oil & Refining Co. to locate a major refinery on the Mississippi River or Lake Michigan, the proposed enlargement of The Texas Company refinery at Lockport, Ill., the increased capacities of the East Chicago and Wood River, Ill., refineries of the Roxana Petroleum Corp. and the enlargement programs under way or completed by the Toledo, Ohio, group of refineries, bear evidence of this trend along the inland waterways.

Along the East Coast and Gulf Coast the rapid refinery growth of such companies as the Humble Oil & Refining Co., Gulf Refining Co., Pure Oil Co. and the proposed refinery of the Roxana Petroleum Corp. at Houston furnish concrete evidence that expansion has not reached the saturation point in areas where water transportation has always been a dominant factor in the marketing of petroleum products.

To this refinery construction can be added the boat building programs of certain companies and those under consideration by other companies who are investigating the feasibility of changing their traffic system to provide for the maximum utilization of water transportation. The Standard Oil Co. of Indiana which in the past has been the only marketer of petroleum products to use the Great Lakes in the distribution of its products recently has enlarged its tanker capacity. The Roxana Petroleum Corp. next year will move the products of its East Chicago refinery as far east as Buffalo by water. At least three other companies operating refineries on the Great Lakes have investigated the advantages of water transportation and are said to have definite plans calling for the acquisition of the necessary boats and the building of bulk stations at large consuming points.

In the eastern states more bulk stations are being built by major distributing companies along the New York State Canal and other inland waterways accessible to the Atlantic Seaboard. During the past summer movement by barges along the Mississippi and Ohio River points greatly increased, the heavier movement from St. Louis to the Twin Cities being especially significant.

Reason for Interest

Transportation by water of gasoline and other refinery products is of course not new. At the present time over 50 per cent of the refinery movement is by water and ever since the refining of petroleum became one of the major industries, refinery owners have favored the sites with water facilities as the location for their plants. However, many instances can be cited where after the plants were built near waterways, the owners continued to move their refinery products exclusively by rail. It is the changing attitude of these companies that have begun to appreciate the advantages their locations give them that has brought a general interest among refiners as to what part water transportation is to play in the future of their business.

The writer and other representatives of The Oil and Gas Journal in recent weeks have interviewed executives of refinery organizations and traffic authorities for the purpose of determining their views as to the feasibility of increasing the present water movement of petroleum products. The opinions obtained varied from that of the traffic manager who thought that "water was too slow to move anything" to that of the executive who predicted the development of inland waterways to the point where boat transportation plus tank wagon movement would largely eliminate rail transportation in a consuming territory extending from the tributaries of the Mississippi east to the Atlantic Seaboard.

The fact that both political parties and their presidential candidates have stressed the importance of completing the inland waterway projects with improved harbor facilities at many points is interpreted as assurance that boat movement will become more and more practical. In this connection one refiner said that the "boat movement of petroleum products at interior points would never get anywhere until deep waterway connections were provided connecting the Mississippi with Lake Michigan and an outlet to the Atlantic Seaboard was provided via the St. Lawrence River." He predicated any wide utilization of water transportation on the contention that it was necessary to provide channels deep enough to permit the moving of large boats from the coast to interior points. Others who have made a study of conditions are of the opinion that while waiting for these probable future developments it is entirely practical to take advantage of the waterways now available with extensions as they become available.

It has been asked "why all this interest in water transportation along the Great Lakes and the Mississippi? The water always has been here and never used, the refiners preferring to use the railroads." This observation as applied to interior points is accurate as to the past. One reason for this condition as previously explained was the fact that that no attempt had been made to develop the waterways, including terminal facilities at important consuming points.

Larger Volume

Expansion in the refining and marketing of petroleum products also is a factor in the changed attitude of certain companies who have never made any use of available water facilities but who have just recently become interested. Water transportation of oil products is most attractive when large volumes of material are moved over long distances. This explains why California products can be moved around to the Atlantic Seaboard at a lower per gallon transportation charge than a rail movement of 100 to 200 miles.

In the past the company which considered water movement along the Great Lakes or the large interior rivers usually found that it would not be possible to move the material over long distances with relatively small deliveries at any one point. Under these conditions rail movement was cheaper.

Conditions in regard to quantity of material needed have rapidly changed. With a gasoline demand which for the country as a whole has increased more than 10 per cent yearly the consumption is two or three times greater than it was 10 to 15 years ago. The trend in population is toward the large industrial centers generally located along a waterway. The gasoline requirements of such cities as Chicago, Detroit and Cleveland, due to the rapid growth in population, have increased several hundred per cent during the past few years with corresponding increases for the marketing organizations operating at those points. This has furnished the needed volume for water movement.

One refiner pointed out that this trend toward concentration of population and gasoline consumption along inland waterways will continue.

Other industries have realized the possibilities of water movement in their raw material and finished products and are favoring the cities where this facility is available in locating new plants or expanding manufacturing units already in operation. This is particularly true of the Great Lakes region where the population has been concentrated in large industrial centers.

Tank Wagon Transportation

Another development that has added to the attractiveness of water transportation is the greater utilization of the tank wagon in the delivery of gasoline, kerosene and other products. Everyone in the marketing end of the oil business is familiar with the fact that the territory covered with tank wagon deliveries is constantly expanding. With the horse-drawn wagons of a few years ago deliveries were limited to an area within a few miles of the bulk station.

The motor-driven tank wagon and trailers coupled with improved highways has gradually extended this territory until deliveries up to 100 miles from the bulk station are reported. An Ohio refiner during the past year has regularly made deliveries within a radius of 65 miles from the company's refinery. The combination of the tank wagon and trailer makes possible deliveries as high as 3,500 gallons in one dump.

It is obvious that this widening of territory for tank wagon deliveries adds to the advantages of boat movement from the refineries to consuming points. Formerly if the point of delivery was 20 or more miles from the water terminal it was first necessary to transport the gasoline or kerosene by tank car to a bulk station. From the latter station it was then delivered by tank wagon to the nearby dealer or service station. The rail rates for these short hauls are relatively high and this fact tended to detract from any saving in the water movement.

Heavy Consumption

In the Great Lakes region and the Mississippi River basin hard surface roads are the rule between the larger cities and towns. With a tank wagon territory extending 50 to 75 miles from the water terminal it will be possible for some of the larger companies to deliver several million gallons of petroleum products yearly from one point without the use of tank cars.

One company believes that it will be feasible within two or three years to cover approximately one-third of the State of Ohio with tank wagon deliveries from two or three water terminals located along Lake Erie. With bulk stations along the Ohio River another third of the state could be covered.

Comparative Costs

In the matter of comparative costs as between water and rail transportation companies who have made investigations vary widely in their conclusions. So far as the interior waterways are concerned no representative figures on actual costs of water movement are available. There are several factors to consider in addition to the figures which cover the boat investment and operating charges.

Practically all of the inland waterways are only navigable part of the year. The boat movement from Lake Michigan to Lake Erie is limited to seven or eight months yearly. The same situation is found in the upper part of the Mississippi. This means that the equipment will be out of service part of the year. One large company with refineries and distribution in both the Great Lakes and Atlantic Seaboard areas expects to solve

(Continued on Page 123)

DOZEN POOLS IN U. S. PRODUCED MORE OIL THAN FOREIGN FIELDS

By James McIntyre

Statistics just issued by the United States Bureau of Mines on the crude oil production of the world in 1927 show a total of 1,261,083,000 bbls produced, of which the United States contributed 901,129,000 bbls. or 71.5 per cent. Next to the United States comes Russia with 6.1 per cent; then Mexico with 5.1 per cent and Venezuela with 5.0 per cent. This accounts for 97.7 per cent of the whole quantity produced.

We have taken the trouble to make up a separate table of production, using the figures of the Bureau of Mines published in its annual report as well as in its more recent world report, and give here the production of the world, breaking the United States up into producing divisions and comparing them with foreign nations as producers of petroleum and it makes a very interesting showing, emphasizing the tremendous importance of American States in crude oil production.

For example, Oklahoma in 1927 produced more oil than Russia, Mexico, Venezuela, Persia, Rumania and Poland combined. Oklahoma is credited with a production of 277,775,000 bbls. while the combined production of the six nations above mentioned was 275,671,000 bbls.

California with a production of 231,196,000 bbls. and Texas with 217,389,000 bbls. each produced more than the combined output of Venezuela, Persia, Rumania, Dutch East Indies, Colombia, Peru, Argentina, British India, Trinidad, Poland, British Borneo (Sarawak), Japan and Egypt, which combined can show only 215,766,000 bbls.

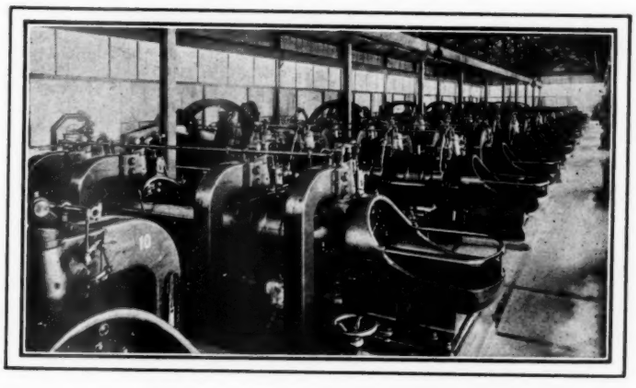
While Russia produced 6.1 per cent, Mexico 5.1 per cent and Persia 5.0 per cent, Oklahoma produced 22 per cent, California 18.3 per cent and Texas 17.2 per cent. Combined the three American States produced approximately 57.6 per cent of all the oil brought to the surface in the world last year. It is worthy of remark that the Seminole Field in Seminole County, Oklahoma, produced 135,951,098 bbls. or considerably more than the combined production of Mexico and Venezuela or the combined production of Russia and Persia. The Seminole City Pool alone with a total of 47,039,644 bbls. produced more than Persia and British India combined and Earlsboro with 36,855,196 bbls. and Bowlegs with 36,649,733 bbls. (both pools being a part of the Seminole Field) were each more prolific producers than Rumania and Peru combined.

Persia with its production of 39,688,000 bbls. was third in rank among the foreign fields yet its production was not much more than that of any one of four American pools (excluding Seminole), namely, Smackover, Ark., 35,507,476 bbls.; Borger, Tex., 32,240,493 bbls.; Long Beach, Calif., 34,541,667 bbls. Any one of nine pools in Oklahoma, Texas, Arkansas and California produced more oil in 1927 than Rumania.

When it is remembered that only 28.5 per cent of the world's oil production of 1927 came from fields outside the United States, it is a remarkable fact that this production of 359,954,000 bbls. is ex-

(Continued on Page 199)

95 Years of Engine Building



The C. & G. Cooper Co.

DALLAS, TEXAS MT. VERNON, OHIO LOS ANGELES, CALIF. TULSA, OKLA.

Concern Is Zestfully Young at 95

The C. & G. Cooper Co. Maintains Youthfulness by Scrapping Old Methods as Fast as Better Ones Are Devised

By Thomas F. Smiley

"Ninety-five years of continuous commercial existence isn't achieved by high-powered windjamming, you know. Now what in particular would you say has enabled The C. & G. Cooper Co. to attain almost a century of life and to manifest today every sign of youthful good health and vigor?"

The question was put to Stan Johnson,

Charles Cooper, who with his brother, Elias, established the first little Cooper iron foundry.

the Cooper busy man without title, who has had occasion to study the different phases of the concern's life and history.

"Well," answered Mr. Johnson thoughtfully, "if I were to name the one quality that in my opinion has contributed more than any other to the long life of our company, I believe I would say frugality. I know that sounds queer, for we think of frugality in connection with private thrift. But frugality is nothing in the world but elimination of waste. It's the thing that impels an individual to plan his expenditures so that he gets 5 cents' worth of goods or service in return for every nickel he spends. As a result, he is able to give and to get the most out of life while he lives and to take care of himself in old age. A business concern by practicing the same policy is able to put the best of everything—materials, workmanship, service—into its products. It doesn't have to skimp. The men who founded this company were frugal men—frugal in their personal lives and frugal in their management of the business. And I believe that quality of frugality has become a vital part of the company's life through the long years of its existence."

A walk through the plant made clear what Mr. Johnson had in his mind. On every hand was labor-saving machinery. There were electric tramways, magnets for loading and unloading material, cranes, electric lift trucks for moving small material, electric jib hoists for putting heavy castings in place for machining. Workmen were using their heads rather than their backs. From the superintendent's office, where an ingenious system has been worked out for keeping in touch with details of work in the various shops, to the railroad siding, where finished products were being loaded for shipment, modern labor-saving devices were employed.

From Sap Kettles to Diesel Engines

Here in Mount Vernon, Ohio, on the spot where two brothers 95 years ago made sap kettles and plowshares for a farming community was a manufacturing concern making modern gas engines, compressors and Diesel engines. There were 33 buildings of different kinds and sizes, including a new small-tool machine shop 120 feet deep and 200 feet long. These buildings were on 46 acres of ground owned by the company.

If any man had told the founders of the concern in 1833 what the year 1928 would see he would have been regarded as a proper subject for a commission in lunacy.

In the fall of 1833 Charles and Elias Cooper erected their original foundry in Mount Vernon. How $50 obtained by selling a horse provided the capital for a start is told by Charles Cooper, writing in 1874 as follows:

"One day while sitting on the hill overlooking the town (Zanesville, Ohio), I saw the smoke curling up from the old Davis foundry. They used, as all foundries did then, an oven or an air furnace for smelting, with raw coal for fuel—hence the smoke. I was soon upon my feet and made directly for that concern, and I have never had foundry out of my mind since. We commenced immediately to make arrangements for building one. I sold one of my three horses for $50."

This money bought the bottom and staves for the first cupola for melting iron. The original plant is described by Charles Cooper:

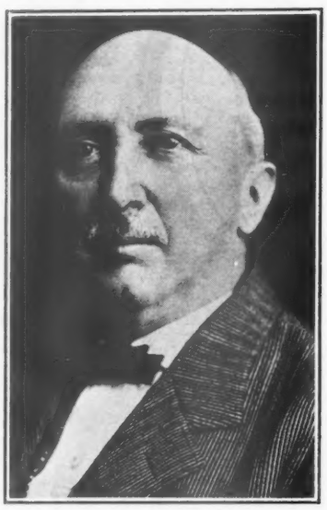
"We moved from Zanesville here, hauling all we had on two wagons. The moulding-house was up, and the winter was spent in getting the horsepower and cupola and other matters ready. The horsepower was a primitive affair. There was a large wooden upright shaft, on the upper end of which was a bevel gear wheel, teeth and all of wood, no iron but the bolts. We broke and carried up the iron,

F. L. Fairchild, president and sales manager of the Cooper company until his death in 1912.

washed the ladles and charged the furnace all by hand. It took all the afternoon to make from 500 to 700 pounds of castings. We worked with the horsepower until the fall of 1836, when we installed a small engine. At the same time we put in a cast-iron blowing cylinder and commenced using coke, which we made ourselves in an old beehive oven, having used charcoal up to this time. We could now melt 1,500 to 2,000 pounds in one afternoon."

It Was Big Growth in Those Days

An addition to the foundry 80 feet long and 50 feet wide was erected in 1842, and a two-story machine-shop was completed the same year. At that time the principal products of the works were



C. G. Cooper, president of the company from 1912 to 1919. Familiarly known as "C. G."

plows, carding machines and special power machinery.

Elias Cooper died in 1848, leaving his brother Charles to manage the business alone until the following year, when he sold an interest to T. L. Clark and the business was conducted under the name of Cooper & Clark. In 1852 John Cooper, a younger brother of Charles and Elias, was taken into the firm and the name became Coopers & Clark. In that year the concern built its first blowing engines. At least one of these was still in use until recently, providing air blast for a charcoal iron furnace near Oak Hill, Ohio.

In the early fifties the firm began making steam locomotives, the first built west of the Allegheny Mountains. This venture into the railroad equipment field proved disastrous owing to the weak financial condition of the railroads at that time. A crisis was reached in the firm's affairs in the panic of 1857, when it suffered heavy losses on account of railroad and other commercial failures. By careful management hard work and that frugality to which reference already has been made as one of the reasons for the company's longevity, this panic, like that of 1837, which also had caused grave concern, was weathered and the business was carried on without interruption.

It is told of Charles Cooper that once when a railroad failed to pay for a locomotive which the firm had made and delivered he locked a wheel of the locomotive to a rail with a padlock and chain and that he refused to remove the chain till he got his money. Stories of his scrupulous honesty are told. During the black days of business panic there was no money to pay the firm's workmen sometimes. Charles Cooper told the men they would be paid just as soon as the firm had the money to give them. And trusting him absolutely, the men worked on, always getting their money eventually in strict conformity with Charles Cooper's promise. It is said that three months once went by without the footsteps of the ghost being heard.

Passing Years Bring Changes

In succeeding years the firm underwent various changes in personnel and name. In 1895 the business was incorporated under its present name and here opened what might be termed the second stage in the company's development. Three men who left the imprint of their characters and their business ideals on the company in the early part of this period were F. L. Fairchild, president; C. G. Cooper, secretary, and D. B. Kirk, treasurer. B. B. Williams, now president of the company, was assistant secretary under the administration of these men and he became imbued with the spirit of progressiveness that pervaded it.

C. G. Cooper, a son of Elias, became president of the company upon the death of Mr. Fairchild in 1912. In Mt. Vernon they still refer to him as "C. G." He is described as a little man of nervous, jerky action, with penetrating gray eyes. The commodity commonly referred to as "apple sauce" was no part of his equipment. If he had been appointed ambassador to some foreign court it is safe to say history would have had another war spread on its bloody pages. C. G.'s unrestricted candor would have started one.

A case in point, just to show his brand of diplomacy. During the period of reconstruction following the Civil War inquiries for steam engines were numerous. Once when all the regular salesmen were busy C. G. called on a prospect. There was no warm handshake or slap on the back by way of preliminary, no solicitous inquiry as to how the prospect was feeling. Just a blunt, bullet-like, "Do you want to buy a steam engine?"

"No," was the answer from the man at the desk.

Waiting for Granddad, with whom they will eat lunch in the little park opposite the main gate.

"All right, then you can go to hell," responded C. G.

He slammed the door behind him and the interview was ended.

They Didn't Have to Put Him on Oath

There is no record of his ever having praised anybody. Some of his stinging criticisms, especially those provoked by slipshod workmanship, are still quoted. But there is not a man to say that C. G. ever was unfair or mean spirited. Of the older men still employed in th

Cooper plant says of him, "When any of us ever needed help we went to C. G. first. We didn't always get what we asked for, but we always came out with the feeling that we had been treated square."

C. G. was one of those men who regard words as things for expressing one's feelings, not for concealing them. He seemed to believe it was just as dishonest to say anything that did not truly express his feelings as it was to lie outright. Unquestionably this was the reason that he did not alienate all the company's clients. Whether they enjoyed social interchanges with him or not, they knew they could bank on what he told them.

Mr. Fairchild, president of the company while C. G. was secretary, was the very antithesis of C. G. in temperament. With an honesty no less rugged than C. G.'s own, he possessed a sunny disposition that made friends everywhere. A Mt. Vernon merchant says, "Everything seemed to look brighter after F. L. walked up the street and there were few of us who missed an opportunity to exchange greetings with him." Hotel men in New England and the South still talk of his cheery manner.

Frugality. Elimination of waste. You see the evidences of them as you stroll about the works.

Throughout the administrations of the various men who have served as guiding

head of the Cooper company from those early days almost a century ago when the products were sap kettles and plowshares, to the present, when big gas engines and oil field compressors are built by an army of skilled mechanics, those policies have been observed until they have become a part of the company tradition. They are expressed in every department of the plant.

Here Are Some of the Things

A cost accounting system gives the cost of every item entering into an engine or compressor to the last screw. An "incentive" system established throughout the shops stimulates the employe to give the best that is in him, knowing that his own welfare is inseparably bound up with the quality of the work he does and the faithfulness of his service. A device for keeping track of every job throughout its various stages provides virtually instant knowledge of just what progress is being made on any given order.

Scientific accuracy is sought. Nothing is left to hit-or-miss methods. It is all just another form of the frugality, the abhorrence of waste that characterized the founders of the company. F. L. Fairchild, former president, according to records still in existence, used to keep an account of his smallest expenditures, putting down even a 5-cent shoe shine. He wanted to know what it cost him to live. He regarded it as even more vital to know what it cost his company to live. "If we know what it cost us, then we know just what to charge for it," was not a mere business platitude with him. It was a guiding principle, one that became ingrained in the policies of the company.

And with all its attention to precision there is no faintest sign of fussiness in the Cooper method. One would have to travel far before finding a better example of orderliness and steady, unflustered procedure. The workmen—there are about 850 of them—show no manifestations of haste or hurry. Yet the production records, and the efficiency which those records indicate, are fairly amazing. Two explanations suggest themselves to a man interested in causes and effects.

Painless Death for Details

One is that many of the shop and office details have been dealt with by summary execution. Yes, summary execution. They've just been killed off, choked to death or whatever you want to call the operation of getting rid of them for all time. They simply are not there any more, and inquiry reveals that some fellow, thoroughly sick of the loss of time and temper resulting from certain petty details in his department, sat down and did some hard thinking, at the end of which he announced to the universe at large: "Why, blast it all, here's the way to do that. Listen—"

The invention of the "machine control wheel," described elsewhere in this issue; the introduction of wholly unconventional but marvelously direct and comprehensive methods of keeping records; the location of machines and material so that unnecessary handling is eliminated—these are some of the things that illustrate what is meant by summary execution of details. There are not a bewildering number of motions around the plant, but every motion accomplishes something. There is not much walking, but every step counts.

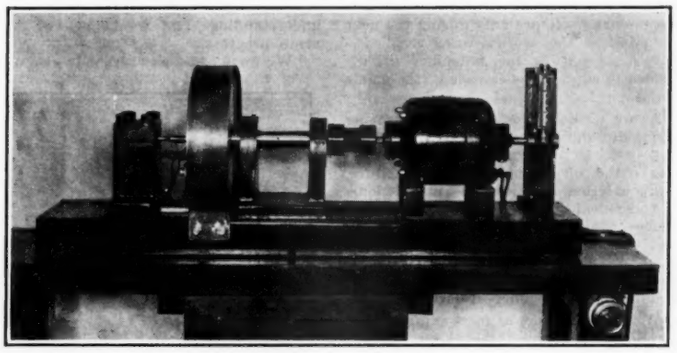
The other explanation of the efficiency which one finds unmixed with any apparent effort to break records may lie in what already has been referred to and which is the subject of another article in this number of The Oil and Gas Journal—the "incentive" system of handling the workmen, who under its operation virtually fix their own wages and are eager to do their best.

The cheerful abandon with which the Cooper company tosses an old method into the scrap heap as soon as it finds a better one indicates that it has discovered how to be extremely old and enthusiastically, zestfully young at the same time.

SCIENTIFIC ACCURACY IS SOUGHT IN THIS LABORATORY

Ninety-five years ago when Charles Cooper began making iron castings for a pioneering agricultural community in central Ohio, no one bothered about the chemical content of the iron. In those days there were two kinds of cast iron, good and bad. They knew that pig iron from certain localities handled in a certain manner resulted in good tough castings or in hard castings, whichever their product required. Why certain methods of handling the iron made it more brittle was of no consequence. While the quality of those early Cooper castings gained a favorable reputation, the service required of them was not so severe and if they varied in some of their characteristics, no one was ever the wiser.

The more severe demands made by present day machinery has long since required that guesswork and rule-of-thumb methods be replaced by scientific accuracy at the C. & G. Cooper plant in Mt. Vernon, Ohio. Well equipped chemical and physical laboratories constantly guard the materials used in Cooper engines today. Test bars from every ladle full of hot metal are tested for both chemical and physical properties and accurate and permanent records kept of the results. Steel castings are bought on rigid specifications and test bars attached to the castings are checked for strength and analyzed. Cross sections are microphotographed to check their internal structure and annealing. Test bars from special steels are given millions of load applications in fatigue testing machines to determine their adaptability for some unusual service. Babbitt and bearing metals, shaft forgings, large and small drop forgings, special alloy castings, heat resisting alloys, all are made to disclose their secrets of content and structure and records kept of them to check with their service records.



This machine in the Cooper physical laboratory is used in testing special steel to determine its ability to withstand fatigue.

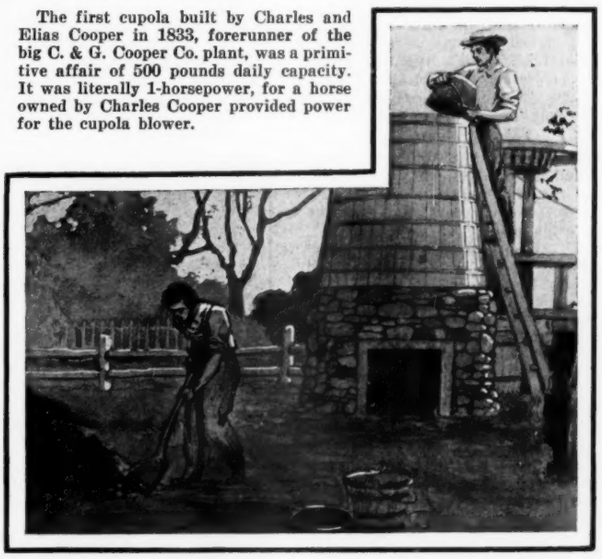
As one of the attendants in the Cooper laboratory drew four small quartz crucibles from the white hot interior of an electric furnace, he was asked: "What is that bit of white powder in each little bowl?"

"That is pure silicon," he replied.

As soon as it cooled sufficiently, the contents from each crucible were weighed on a delicate balance and another analysis of a car of pig iron had been checked and recorded. Such is the care that is being taken today by leading manufacturers to protect the purchasers of oil and gas field equipment.

ONE-HORSEPOWER MEANT JUST EXACTLY THAT IN 1833

The first cupola built by Charles and Elias Cooper in 1833, forerunner of the big C. & G. Cooper Co. plant, was a primitive affair of 500 pounds daily capacity. It was literally 1-horsepower, for a horse owned by Charles Cooper provided power for the cupola blower.



MORE THAN HALF OWN HOMES

The low rate of labor turnover in the plant of The C. & G. Cooper Co. is one of the evidences that folk like to work for that organization. It is a significant fact, too, that more than half the employes are home owners. Many of the others are saving systematically from their earnings to buy homes. There are 43 men working for the company who have 44 sons or daughters on the pay roll, too.

NO ARISTOCRACY SEEN HERE

Shortly before the machinery was installed in the new pattern shop of The C. & G. Cooper Co. last fall the company decorated the interior with flags and streamers and threw the building open to the employes and their families for a dedication party. Officials of the company, office boys, stenographers, foremen, machinists, pattern-makers, all joined in the dancing and general fun.

Square Deal Secret of Fine Morale

Willingness to See the Other Fellow's Viewpoint Removes Misunderstandings and Class Feeling, Company President Says

By Thomas F. Smiley

"All right, but let's get out in the sunshine," responded B. B. Williams, president of The C. & G. Cooper Co., Mount Vernon, Ohio, when he was asked if he could take a little time out to talk about the company. Repeatedly during the next 15 minutes the words were recalled—"Let's get out in the sunshine." They seemed to express the essence of the man's philosophy.

As we walked along avenues separating the plant buildings and Mr. Williams spoke of the company's methods, of its ideals and of its plans for the future, the conviction grew that he unconsciously had revealed his way of handling problems—personal, business, any kind; that whatever task or obstacle or disappointment or puzzling situation might confront him, his first step would be to get it out in the sunshine.

We stopped for a few minutes just across the road from the oldest building on the 46 acres of ground comprising the plant. It really is a series of old brick structures, including the one where the modest operations of the concern prior to the Civil War were performed. They are still in use, chiefly for storage purposes, and present a strange contrast beside their modern steel, concrete and brick neighbors.

"It will have to go," remarked Mr. Williams, and there was a trace of regret in the way he said it. "It represents the early years of this business and the men who founded it. It's a background for all these modern buildings on the other side of the road—Hello, Dan." A workman was passing.

"Yes, it will have to go. We want to see there some day a recreation park and playground for our men and their wives and children. How are you, Jim?" Another workman.

Mr. Williams told more in detail of the recreation park project which the company had under consideration. He spoke of his men and their interests as one deeply concerned in them. A rather poorly dressed Irish woman approached and without suspecting the president's identity, asked, "Do you know where the molders come out?"

Yes, He Knew

"Yes," answered Mr. Williams, "right here," and he walked with her a few yards to one of the gates of the plant.

"I want to see Bert Garver," the woman explained.

"Roy," said Mr. Williams to a foreman passing by, "Please go in and tell Bert a lady here would like to see him."

We strolled toward another building. In a few minutes the woman approached again. She obviously was anxious about something and it seemed Garver had left the plant. "Are either of you gentlemen connected with the Cooper company?" she asked.

"I am," responded Mr. Williams kindly.

"Well, my son is going to come to Mt. Vernon and he wants a job. He'll do any kind of work, any kind."

"I see," said the president of the company with as much politeness as he could have shown the woman if she had driven up in a handsome limousine. "Now right inside that door you will find the man you should talk to. Just go in there and tell him all about your son. Hello, George. Your rheumatism getting better?"

An observation that there did not seem to be much of a monarchy around the Cooper company plant prompted Mr. Williams to say with a smile:

"No, we aim to have a real democracy here. There was a time when we could see signs of that suspicion and aloofness that develop so easily between the offices and the shops. We knew those feelings were the result of failure to understand the other man's problems and viewpoint. We have done our best to remove misunderstandings and we believe we have made progress.

"We knew, just as everybody else must know, that you can't gain the other fellow's trust and confidence unless you try to be absolutely on the level with him. We were sure we wanted to be on the level with our men. We were equally sure that the men wanted to be on the level with each other and with us. What could we do to banish in our plant all signs of that distrust which seems to exist the world over between the directing heads of industrial plants and the workmen and between groups of the workmen themselves? You probably couldn't have found less of it in any manufacturing plant than there was right here, but we didn't want any at all.

Co-operation and Team Work Sought

"Well, we held conferences in which men from the shops took part. We set out on a program designed to break down any spirit of division wherever we might find it and to install in its place a spirit of genuine co-operation and team work. Obviously the initiative had to be taken by the company. It was necessary to show that we really had the welfare of the men and their families at heart. If we made that clear, then we felt sure that we could count on the men to show in an equal degree that they had the interests of the company at heart.

"One of the things we did was to give the men an opportunity to make themselves worth more money through a night school providing a two-year course in modern production methods and management. Textbooks were provided and experts in these subjects gave lectures. The school was open to all the men who cared to take advantage of it, but it was especially valuable of course to foremen and to other leaders in the various departments and to those men who had ambition to gain higher rounds on the ladder. The school is still in operation. Men increase their efficiency through it and increased efficiency is rewarded with higher pay.

"Another thing was the adoption of a plan under which we pay the men dividends on their own wages. Don't misunderstand me when I speak of paying dividends. There is no philanthropy about it and we don't want anybody to think of it that way. The men contribute their skill and loyal service. In a very real sense this skill and loyalty are investments made by the men in the business. Why shouldn't they receive a dividend on their investment when earnings warrant it? We've done this for five years, paying 6 to 9 per cent, according to the earnings of the business at the end of the year. Here's one of the letters we sent with the dividend checks one year."

Mr. Williams fished from several papers a letter which read in part:

"Enclosed is our check which represents an additional 6 per cent on all wages paid you from January 1 to November 1, including any overtime. In the name of all your fellow workers as well as our stockholders and directors, we want to thank you for your continued loyalty and co-operation in this industry, which means so much to the people in this community as well as those actively engaged in it."

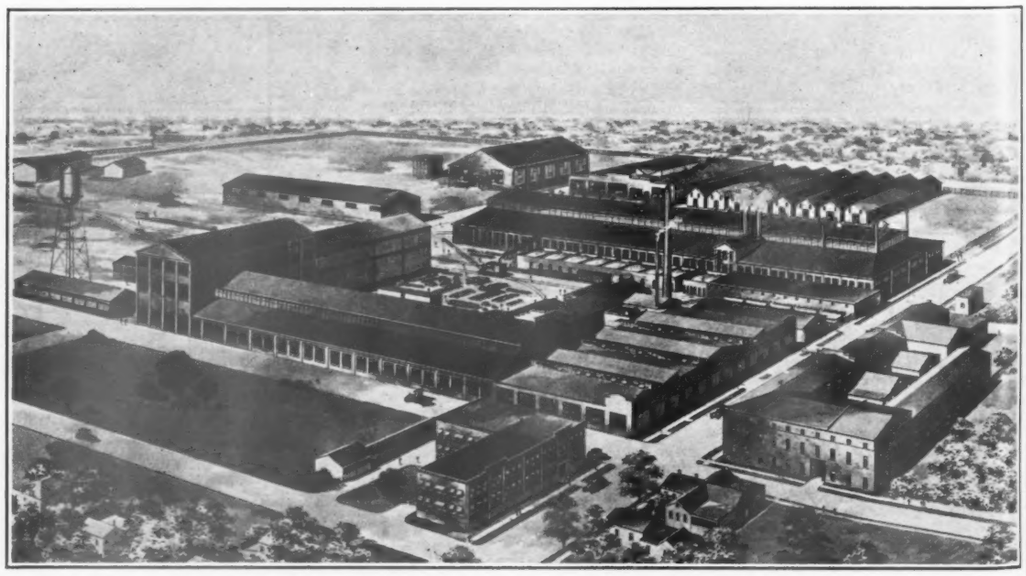
Trying to Build Democracy

"We have tried to build up an industrial democracy here," continued Mr. Williams, "based on fair dealing, friendly co-operation and open-mindedness. You know—"

He was silent a moment, as though hesitating to express in words a thought that was passing through his mind. Then he continued:

"You know unless you can put your religion into your business there's something wrong with either your religion or

B. B. Williams, president of The C. & G. Cooper Co., and Jim Feeney, one of the older employes, chatting in the president's office.



Bird's-eye view of the Cooper plant in Mt. Vernon, Ohio, as it looks today with the new machine shop and office extension completed.

Queer Device Saves Guesswork

Keeps Assistant Superintendent in Constant Touch With Progress of Work in Machine Shop

When you enter the office of Frank R. Moore, assistant superintendent of The C. & G. Cooper Co. plant in Mount Vernon, Ohio, your attention immediately is riveted upon a contrivance whose principal features, so far as you can make out at first glance, are three wheels, or discs, each about 33 inches in diameter, set upright at a slight backward tilt, so that they suggest three gear wheels. Each wheel revolves on its own axis and all three revolve horizontally on a stout upright.

Mr. Moore's pleasant "Glad to see you, sir," diverts your gaze from the strange device for a moment only and you ask in frank bewilderment: "Mr. Moore, what is that thing, anyway? A gambling machine that the police overlooked? A trick electric fan?"

Mr. Moore has heard the same sort of questions so often that he doesn't laugh at them any more—not out loud. He just smiles good-naturedly and explains:

"It's our machine control."

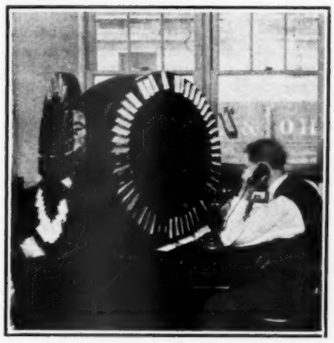
Oh, yes, to be sure. Why hadn't you thought of that right away? You try to look as though you understood perfectly. Then your curiosity gets the better of you and you own up that you don't know any more about the thing than you did before, but that you certainly would like to. Mr. Moore knew you would do that and then he explains the interesting invention for helping to keep his office in close touch with work in the machine shop.

At the outer edge of each of the three wheels are 52 little pockets made to admit card-index cards. Each wheel represents one or more departments in the shop. One wheel represents Department E-1. Another represents Department E-2. The third represents Departments E-3 and E-4. Now then each one of the card pockets on Department E-1 wheel corresponds to some machine in that department of the shop—a lathe, a milling machine, a boring mill or a planer, for instance. The cards in that pocket bear memoranda of certain work assigned to that machine. Each machine in the shop bears a number and there is a card pocket bearing the same number.

Here's the Way It Works

Let us suppose Mr. Moore receives an order for a main crosshead clamp stud. Four operations are required in the making of that stud, one on a turn lathe, one on a milling machine, one on a vertical drill and one on a vise. A card is made out, showing each of these four operations. If the lathe operation is first, the card is put in the pocket corresponding to a certain lathe in the shop. The cards in each pocket are arranged in the order in which it is desired to have the work done. Precedence of one job over the others is effected by simply placing the card for that job at the top of the pack.

At this point it should be stated that all information regarding the beginning and completion of work is transmitted between the machine shop and Mr.



This ingenious "machine control" schedules and routes every piece of work through the shop.

Moore's office by a telautograph, which automatically reproduces at one end of the line the message written at the other. This telautograph not only obviates interruptions by the telephone bell at busy moments, but it ends the nerve-racking ordeal of trying to hear what the other man is saying when his voice is drowned by the bang and clatter and hum of a machine shop. Errors caused by misunderstood telephone messages are prevented in this way.

Now going back to our wheels, let us suppose that in its turn the lathe operation on that main crosshead clamp stud is assigned to the workman on lathe No. 60. The time when he receives that job is recorded, as is the time when he finishes it. As soon as he has completed the operation he reports to his foreman, who transmits a message by telautograph to that effect to Mr. Moore's office. A record is made on the card in No. 60 pocket and the card is moved to the pocket corresponding to the machine on which the next operation is to be performed. The workman on No. 60 lathe is then assigned by the telautograph to the job which the next card in No. 60 pocket shows is to come next.

An End of Guesswork

There is no chance for confusion or misunderstanding. The system works with the precision of a clock. Records made from the pocket cards show the progress of the work on any order at any moment. If the president of the company wants to find out how the shop is getting along on that order for three compressors for such-and-such an oil company Mr. Moore can tell him right off the bat. There is no guesswork and no series of more or less unsatisfactory inquiries among foremen. The whole story, from the opening chapter to the last, is right there as it is taken from the cards held by that queer-looking three-wheeled device. The system of recording what is told by the cards on the wheels contains some ideas as original as that of the wheels themselves.

The machine control is an invention of Mr. Moore and the superintendent, B. L. Larsen. They had the device built in the shop. They declare that the system of which it is a part has doubled production. The machine shop foreman now has no clerical work to bother him. He is able to devote all his time where it primarily belongs, to the direction of his men and constant oversight of the progress of work. Other advantages are obvious. Mr. Larsen and Mr. Moore plan establishing the same system in the plant of the Hope Engineering Co. of Mount Vernon, recently acquired by The C. & G. Cooper Co., and operating it from their present offices.

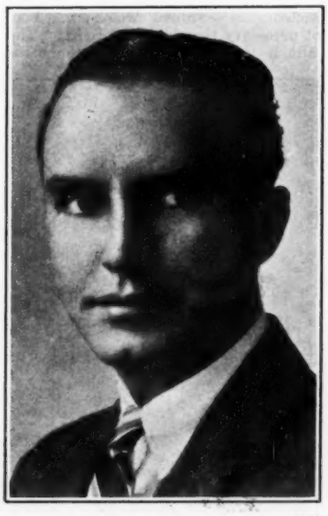
Around the offices the machine control sometimes is playfully called "the roulette wheel" or "the ouiji board," but they all call it a wonder.

BRANCH MANAGERS KNOW OIL INDUSTRY'S NEEDS

The C. & G. Cooper Co. maintains Mid-Continent, California and Texas branch offices, each in charge of a man familiar with oil industry requirements in compressors and engines.

T. F. Hudgins, Tulsa, Mid-Continent manager.

J. W. Reed, Los Angeles, California manager.



A. A. Burrell, Dallas, Texas manager.

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your business." He smiled as he said, "I hope this concern is being so conducted that nobody ever will be able to point out any place where religion ends and business begins."

The head of the Cooper company mentioned other enterprises undertaken with a view of making it clear to the workmen that competence and faithful service were appreciated by the company, and that it meant to show its appreciation in very practical ways; that it desired to co-operate with the efforts of workmen to increase their earning power; that the success of the company depended upon capable men in the shop as certainly as it did upon intelligent supervision in the office; that any workman who felt he had suffered an injustice would receive a sympathetic hearing and that if any adjustment were shown to be needed such adjustment would be made; that frankness and candor on the part of all would dissipate misunderstandings, but that harboring a grudge hurt the man who harbored it more than it did the man against whom it was directed.

"We have learned a lot, are learning every day and are having a good time doing it," said Mr. Williams as the pleasant little stroll came to an end. "It was just as necessary for us to get the other man's viewpoint as it was for the other man to get ours. You can accomplish wonders in the elimination of friction if you will meet the other fellow halfway and then go a few steps farther. The good results of co-operation and good will have begun to show up in the quantity and quality of our product and all of us who work here share in the benefits along with our stockholders and customers. We are trying to make this industry a community of interests for the benefit and happiness of all concerned in it."

MISHAPS GET PROMPT FIRST-AID ATTENTION

An exceptionally low accident rate in the plant of The C. & G. Cooper Co., Mount Vernon, Ohio, is attributed to safety devices installed, to careful observance of safety regulations, to a high average of intelligence among the workmen, and to the low labor turnover which reduces the number of new men who must accustom themselves to unfamiliar arrangements of machinery. There are enough minor mishaps, however, to keep time from hanging heavily on the hands of Louis W. Bernicken, first-aid man. An average of 60 men a day appear at the first-aid station for treatment or health advice. Of this number, 35 represent new cases. Most of the others come for redressings or for inspection of injuries already treated. The greatest number of patients are men who have been struck in the eye by a fragment of steel or emery. There are also the usual cuts and bruises, and many receive tablets to check or relieve colds.

The equipment includes an operating chair, operating table, bed, therapeutic lamp, violet-ray machine, electrical sterilizer, first-aid instruments and the usual stock of bandages, etc. The operating table is designed of course for serious cases only, and in the three years in which Mr. Bernicken has been in charge he has used it just once. In that case a man had suffered a broken leg, and he was placed on the table to await the arrival of a doctor in response to a telephone call. Not in one case throughout Mr. Bernicken's service has infection followed an injury treated by him.

Before entering the service of the Cooper company, Mr. Bernicken, who completed a regular training course as nurse, had experience in hospitals and in private practice of surgeons.

PATTERN SHOP IS MODERN

The pattern shop of the Cooper company, completed in the fall of 1927, has unobstructed floor space, evenly daylighted by sidewall and monitor windows. This, with individual motor drive for all machines, permitted a logical layout of equipment and ideal working conditions.

Workman Fixes His Own Rate

Under the Incentive System He Automatically Raises His Pay by Improving His Percentage Marks

"Incentive system" is the name given to the plan under which shop employes of The C. & G. Cooper Co., Mount Vernon, Ohio, work. The name is self-explanatory. The system is a modification of several others and was formulated by the company's superintendent, B. L. Larsen. Before he joined the Cooper company 14 years ago Mr. Larsen was a mill superintendent of Bethlehem Steel Co.

Under the operation of the incentive system workmen on the different machines virtually fix their own wage rate. Very much as a college professor gives each of his students a percentage mark based on the student's work, so Mr. Larsen gives his men percentage marks based on their work. The man's percentage determines his hourly rate.

There are three classifications. Class A comprises those men who attain a grade of 80 to 100 per cent; B, 70 to 80; C, 60 to 70. If a man cannot make a score of 60 or better he is not retained on the pay roll except in case of emergency.

Each man's percentage is determined by comparing the time he actually consumes on a job with the estimated time for that job fixed in the superintendent's office. This estimate is mathematically determined by Mr. Larsen and his assistant, Wallace Yearnin, both of whom are trained and experienced machine shop men. They determine the total surface to be machined on a casting. They know the speed at which the metal can be cut with safety. They know the width of the cutting tool. From these factors they determine exactly the time required actually to machine the part.

The skill of the workman in handling his machine, his expertness in putting a casting in place on the machine quickly, his ability to keep his machine operating at the highest speed commensurate with safety—such things are factors in maintaining a high or low percentage.

Some Beat 100 Per Cent

Perhaps it should have been said at the outset that there really are four classes of workmen under the incentive system, rather than three, namely, A, B, C, and those men who score higher than 100 per cent. That smacks of the paradoxical, but it is a fact that some of the men in the Cooper company shops maintain percentages higher than the one that theoretically signifies perfection. Men make as high as 120 per cent as a result of their ability to do better than the estimate requires. These exceptional men receive a special rate of pay.

The estimated time fixed in the superintendent's office can be equaled by an efficient, well-trained workman. It is not necessary that he be a prodigy. Thus while a man may not be a topnotcher in speed if his work is well done and he regularly turns out a good job, he may readily stay in the A class, with its range of percentages from 80 to 100.

There is a fixed hourly rate for the Class A man working on a certain machine, one for the B man on the same kind of machine, one for the C man. Obviously unless a man with a C classification has a cranial depository packed with concrete he sets out to get a higher rating. He tries to find out where his faults lie and to remedy them. It is not only useless to ask for a raise, it is unnecessary. The man gets his own raise.

Superintendent B. L. Larsen. On the walls and under the glass top of his desk are efficiency records.

By a system that is as nearly scientifically accurate as it seems possible to make it he fixes his own hourly rate. The fairness of it is clear. The reason for calling "Incentive" is clear, too.

Low Men Go First

If industrial conditions arise that make it imperative that men be laid off, the C men go first. If still more men must go, the B men are next in line. The A men are kept on and will be kept on in the absence of absolutely demoralizing industrial conditions—and no such conditions are in sight.

Here is a thing that should be pointed out: Sentiment, personal likes and dislikes, are permitted to have no part in the operation of this incentive system. If layoffs become necessary it is noted that the records show Jim Brown to have the lowest marks. Jim is a thoroughly likable fellow. Mr. Larsen himself may like Jim immensely. But Jim's amiable qualities have no more to do with the case than have those flowers that bloom in the spring. His marks are what count—nothing else. Jim's marks are the lowest and Jim is the first to go.

If the Jim Browns want the benefits and privileges of the A man, then they must become A men by dint of their own hands and heads. Nobody but Jim Brown himself can make an A man out of him.

What are some of the practical results of the incentive system? One is the reduced rate of labor turnover. The books show this reduction to be truly remarkable. Others are greater individual efficiency and lowered factory costs. Still other important results are heightened loyalty and morale among the workmen. A workman who sees set up before him a clear mark and who sees himself getting closer and closer to that mark is bound by his own efforts to be a good workman. He can't be anything else.

THEY ALL LIKE TO BE IN TWENTY-YEAR CLUB

Among other pleasant features in the life of The C. & G. Cooper Co., Mount Vernon, Ohio, is the Twenty-Year Club, to the membership of which any employe or executive who has been in continuous service of the company 20 years or more is eligible. While its purposes are largely social, it has an executive committee, composed of representatives from the various departments, which holds quarterly meetings, discusses company policies, plant practices, etc., and recommends any changes which in its judgment would be beneficial.

The club members also hold quarterly meetings for social contact and to transact any business in hand. On these occasions it is customary to have a smoker with some form of entertainment, such as a motion picture. When the weather is favorable the gathering sometimes takes the form of a picnic. Once a year the club holds a big dinner, with vaudeville features and a dance. Wives of members are guests. This year the annual affair was held on October 27 at the Mount Vernon Country Club.

The present officers are: President, E. V. Hagans, engineering department; vice president, John S. Warman, pattern shop; secretary and treasurer, Z. E. Taylor, secretary of the Cooper company. B. B. Williams, president of the company, is a member of the Twenty-Year Club.

Members of the Twenty-Year Club at one of their regular meetings.

JERRY HAS SEEN MANY CHANGES IN HIS TIME

Jerry Taugher, watchman at the north gate of The C. & G. Cooper Co. plant, Mount Vernon, Ohio, has given that company a half century of continuous service. He has seen the works grow from one cupola, operated by three men, to 33 buildings on 46 acres of ground with 850 employes. Fifty years is a long time to stay on one pay roll, but—

"Well, they used me right, so I tried to use thim right."

That's Jerry's sententious explanation and it seems to tell the story. He is 75 now, and he was born in Ireland.

Tom Monahan and Charlie Sack were the two other men who worked on the cupola, or furnace, in the old days. Monahan charged the cupola. Sack tapped it out. All Jerry had to do was to pick up 4-foot lengths of pig iron weighing 100 to 200 pounds, raise them to the height of his shoulders and bring them down with a whack on a steel-covered block, which broke the pig into smaller pieces; then push wheelbarrow loads of this broken

Jerry Taugher, watchman, has been with the Cooper organization a half century.

pig iron from the stockyard to the cupola, where he tossed the pieces to a scaffolding about 7 feet high erected beside the cupola.

"You had to work in those days," was remarked.

"Ye're damn whoopin' we did," Jerry agreed instantly.

But Jerry's square shoulders and erect carriage confirm his statement that the vigorous physical exercise merely served to give him remarkable muscular strength. Accounts agree that Jerry was not a quarrelsome man. On the contrary, he kept out of trouble if he could. But accounts agree also that if Jerry was pushed too far—well, it wasn't Jerry that had to put beefsteak on his eye. There is a well-grounded feeling that in case of real necessity Jerry could give a thoroughly creditable account of himself today.

Sober, regular, faithful, Jerry was kept on through the various administrations of the company. He has been a watchman 15 years.

HORSES HAD TO STEER IT

The Cooper company in its early days is credited with having developed the first traction-drive threshing engine. The first of these machines had no mechanical means for steering, so they puffed along the country roads with horses hitched to a tongue at the front for the sole purpose of guiding. A steering device was invented soon, however. The threshing engine was only one of the engines which the company made to meet the demands of the rapidly developing country about that part of Ohio.

NOT EVEN A SET SCREW CAN KEEP OUT OF THIS

If you ever visit The C. & G. Cooper shops in Mount Vernon, Ohio, ask to be taken through Jed Montis' material control department.

Twenty-five years ago when this company was building many Corliss steam engines, an engine often would be almost completed on the assembly floor, when a small special set screw or bolt would be found missing. Somewhere in the manufacturing process this item had been overlooked and now when needed the engine had to wait until that particular piece could be carried through the various processes. This delayed deliveries seriously.

Today when you step into the long material control room you see several clerks busy at visible card index files. In these files, which contain thousands of separate cards, every item to the smallest set screw or cotter pin is kept track of from the time it is ordered until it is checked out of the stores department onto a finished engine.

With this system in operation, the sales department can learn within a few minutes how much work is necessary before one or more of its standard engines or compressors can be completed for shipment.

In this department there is also a record book showing the item and drawing number of the largest piece to the smallest making up an individual engine. These differ slightly for nearly every engine shipped. Consequently there is an individual book for every engine going out. These are important, both to the customer buying the engine and to the company building them, because in later years should a particular engine require replace parts, this book, which is carefully filed, can be consulted and the correct part to fit the engine furnished.

So carefully and minutely have all the different processes been worked out that there is now seldom the tiniest slip from the time an order is started through the plant until it is ready to load on the cars.

COOPER ACQUIRES HOPE MANUFACTURING PLANT

Acquisition of the manufacturing division of the Hope Engineering Co. by The C. & G. Cooper Co. of Mount Vernon, Ohio, adds to the latter concern's line of products types of gas engines and compressors for which there is wide demand in the oil and gas industries. The Hope company, whose manufacturing plant is also in Mount Vernon, has manufactured 40 to 540 horsepower 4-cycle vertical gas engines, available for power service, and 160 and 360 horsepower compressors. The Cooper company will continue manufacture of these units, designating them as Hope engines and compressors.

The Hope company, which was organized in 1908, earned a high place among users of its products. Three large buildings stand on the 10 acres of ground it owns in Mount Vernon. It employed 150 men. It is planned by the Cooper company to retain the workmen of the Hope company and to continue manufacturing the same types and sizes of engines and compressors that established the reputation of the Hope company. Thus owners of Hope units will be able to replace parts the same as in the past. The Hope company now will devote all its attention to pipe line contracting, a branch of its work which has been growing rapidly in recent years.

PRODUCTS CHANGE WITH TIMES

Following a reorganization of The C. & G. Cooper Co. in 1865 the chief product of the plant was Corliss engines, which had come into popularity because of the economies effected with them. But times change and now the company's output is made up chiefly of gas engines and compressors, with Diesel engines gaining in volume.

STITT No. 19
SPARK PLUG

STANDARD EQUIPMENT ON COOPER ENGINES

BUILT FOR HEAVY DUTY SERVICE

⅞" Long
FURNISHED WITH ONE OR THREE PARALLEL FIRING WIRES AS SPECIFIED

ILLUSTRATED FOLDER SHOWING OTHER SIZES AND TYPES FURNISHED UPON REQUEST.

Manufactured By
STITT IGNITION CO., Columbus, Ohio.

The Bolts Studs and Nuts

in Cooper Engines are made from specially rolled material that meets Cooper's requirements for high quality.

Complete stocks of high carbon and alloy steels suitable for high pressure, high temperature bolting are always available to the oil and gas industry and the manufacturers who serve it. The range of Erie Bolts and Studs allows selections to meet all stresses successfully.

Milled Body Bolts

We would like to send you a sample of our Milled Body Bolts with U.S.S. Heads, made from specially rolled high tensile screw steel. Bodies and threads are finished to close micrometer tolerances. Complete stocks ¼" to 1¾" diameter.

Let us send our catalogue showing all lengths up to 10".

ERIE BOLT & NUT COMPANY
ERIE — PENNA.

View of one end of the main erecting floor in Cooper shops

A view down the main bay of the Cooper foundry ~ ~

View in main bay of the Cooper machine shop.

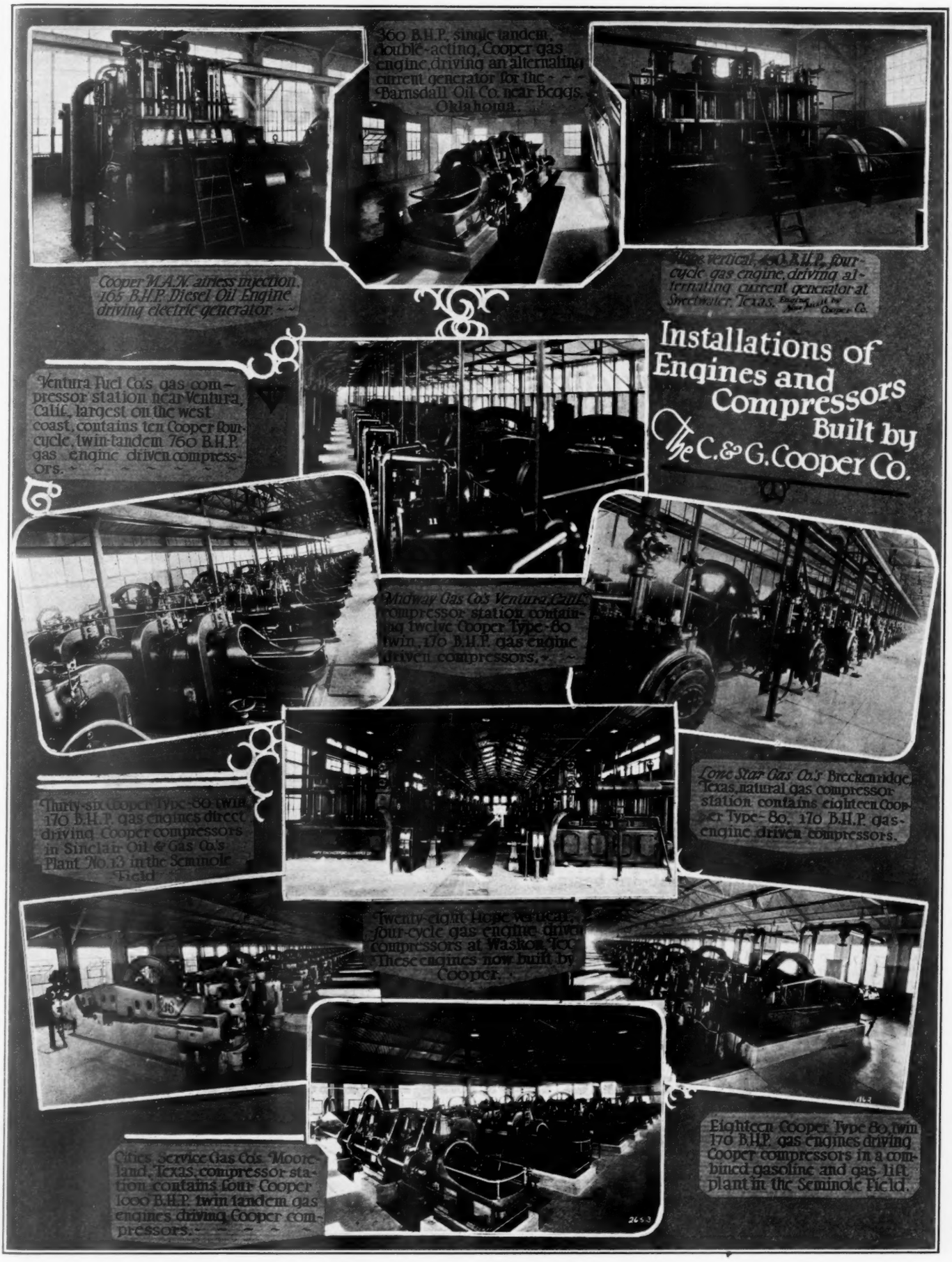
A corner of Cooper pattern shop completed one year ago. ~ ~ ~

Oil tanker J.A. Moffett, Jr. on which three Cooper M.A.N. Diesel Engines driving electric generators supply all of the auxiliary power.

Views of the Plant of The C. & G. Cooper Co. in Mt. Vernon, Ohio

New Cooper Machine Shop, 120' deep by 200' long, which houses only the smaller machine tools.

Main office showing extensions at both ends which have been completed recently. ~ ~ ~


360 B.H.P. single tandem, double-acting, Cooper gas engine, driving an alternating current generator for the Barnsdall Oil Co. near Boggs, Oklahoma.
Cooper M.A.N. airless injection, 165 B.H.P. Diesel Oil Engine driving electric generator.
Two vertical, 450 B.H.P., four-cycle gas engine, driving alternating current generator at Sweetwater, Texas.
Installations of Engines and Compressors Built by The C. & G. Cooper Co.
Ventura Fuel Co's gas compressor station near Ventura, Calif., largest on the west coast, contains ten Cooper four-cycle, twin-tandem 760 B.H.P. gas engine driven compressors.
Midway Gas Co's Ventura, Calif. compressor station containing twelve Cooper Type-80 twin, 170 B.H.P. gas engine driven compressors.
Lone Star Gas Co's Breckenridge, Texas, natural gas compressor station contains eighteen Cooper Type-80, 170 B.H.P. gas-engine driven compressors.
Thirty-six Cooper Type-80 twin 170 B.H.P. gas engines direct driving Cooper compressors in Sinclair Oil & Gas Co's Plant No. 13 in the Seminole Field.
Twenty-eight Hope vertical, four-cycle gas engine driven compressors at Waskom, Tex. These engines now built by Cooper.
Cities Service Gas Co's Moorland, Texas, compressor station contains four Cooper 1000 B.H.P. twin tandem gas engines driving Cooper compressors.
Eighteen Cooper Type 80, twin 170 B.H.P. gas engines driving Cooper compressors in a combined gasoline and gas lift plant in the Seminole Field.

The Ohio Steel Foundry Company

is glad to have had a small part in the making of Cooper engines. "Cooper Quality" has been maintained through all these years by insisting on fine workmanship and good materials. We are very proud that OHIO Steel Castings have been good enough for Cooper engines.

"Ohiolock Frictionless" Return Bend for Cracking and Pressure Stills.

Besides steel castings for gas engines and steam locomotives, we specialize in *Pressure Castings* for refinery equipment operating at elevated temperatures and pressures.

Hi-Steel Return Bends, Junction Boxes, and Fittings are made of electric steel, completely machined and tested.

Manifolds, Headers, Flanged Fittings, Pump Cylinders, and Manheads are cast in basic open hearth steel.

The Ohio Steel Foundry Co.

Lima and Springfield, Ohio

Sales Offices

DETROIT
Donovan Building

NEW YORK
75 West St.

PHILADELPHIA
22 S. 15th St.

ST. LOUIS
1005 Federal Commerce Trust Bldg.

LOS ANGELES
129 West Second St.

TULSA
422 Wright Bldg.

CHICAGO
Peoples Gas Bldg.

HOUSTON
410 Union National Bank Bldg.

ROCKY MOUNTAIN AREA

(Continued from Page 61)

Canon district, is in sand showing a little gas at 1,300 feet. In the same district, the Iowa Oil Syndicate's No. 1 Viles, Section 28-29-11, is drilling at 700 feet and showing a little more wet gas.

Utah

Little news of importance was received from Utah this week, most of the wells being idle. The Utah Southern Oil Co.'s No. 1-A J. L. Shafer, Section 36-26-20, Cane Creek Dome, drilled to 2,123 feet when water broke in from under the shoe and well flowed accumulated oil and water. The 8¼-inch casing is being rerun with a special outside packer to land on shoulder at 1,600 feet to shut off water from above. The hole is bottomed in lime and has not yet encountered any salt. Same company's No. 1 King, Section 13-23-20, Salt Valley structure in Grand County, is drilling in black lime at below 1,650 feet after setting 10-inch pipe at 1,642 feet to shut off a small quantity of salt water at 1,480 feet. The same company's No. 1 Farnsworth, Section 29-4s-1e, Pleasant Valley Dome in Uinta County, is drilling at 425 feet in reddish brown shale. It had some gas at 325 feet and the 15½-inch is at 327 feet. The Continental Oil Co.'s No. 1 Boundary Butte, Section 23-43-22, San Juan County, has a fishing job at 4,305 feet.

Colorado

A deal is reported closed which will insure the completion of an important test in eastern Colorado near the Kansas-Nebraska line in the Etnyre Syndicate's No. 1 Blackwolf, in SW SE NW, Section 7-2s-43, in the Yuma County. The Parker Club, Inc., which is becoming quite active in Colorado and Wyoming, will supervise the drilling of this well which has been standing for some time at 850 feet. This area has been subjected to extensive exploration with geophysical instruments recently and it is understood that a well developed high has been located. The well was spudded last April in a 24-inch hole and is in good condition for a deep test. There were several gas wells drilled in the vicinity of this operation a few years ago and while no commercial production was found in the upper horizons, the results were sufficient to maintain interest. The most important test heretofore drilled was the Continental Oil Co.'s No. 1 State, Section 28-2s-43, which was abandoned at 2,855 feet in the Morrison. The Dakota had water and some gas was encountered at 1,475 feet.

Another test in eastern Colorado in the Denver Basin that is resuming is the Belmont Oil Co.'s No. 1 Maher, NE SW Section 4-6s-59, near Deer Trail, in Elbert County. The hole is bottomed at 3,104 feet and is drilling ahead. The identity of the horizon is not definitely established as drilling recently has been made in shale. At 3,080 feet it had a very good show of gas. It is understood that some strong financial backing is now behind this well and that it will be pushed to completion.

In Huerfano County, the Parker Club's No. 1 fee, Section 4-28-68, joint with the Kinney-Coastal Oil Co., on the Badito-Alamo structure, is resuming at 1,210 feet after being shut down for two weeks on account of lack of water.

In Bent County, the Marland Production Co.'s No. 1 Pipe Springs, Section 27-27-49, is temporarily shut down at 3,987 feet on account of pump trouble, the water line being partly frozen. It is bottomed in the Pennsylvanian lime, being more than 200 feet in that formation.

In Huerfano County, the Huerfano Oil Co.'s No. 2 Oak View, Section 10-29-69, is shut down at 1,650 feet waiting for casing. Another show of gas, estimated at 100,000 to 200,000 feet, was encountered at 1,600 feet. This is a joint operation with the Panuco Exploration Co.

In Jackson County, near the Wyoming line, the Producers & Refiners Corp.'s No. 1 Hendershot, Section 2-6n-86, on the Pole Mountain anticline, set the 12½-inch at 1,844 feet and is shut down waiting for the cement to set.

In Larimer County, the Five Square Oil & Gas Co.'s No. 1 State, SW SW, Section 16-4n-69, on the Berthoud Dome, was unable to clear hole and it was decided to skid the rig 75 feet to the east and start from the top. The new hole, No. 1-A State, has commenced spudding. The old hole was bottomed at 2,640 feet and was believed to be within 200 feet of the objective.

In Rio Blanco County, the White Eagle Oil & Refining Co.'s No. 1 Fordham, Section 9-2s-96, Piceance Creek structure, is drilling at 550 feet.

The Platte Valley Petroleum Co.'s No. 1 Patterson, Section 24-6n-61, on the Greasewood structure in Weld County, is drilling again following reorganization, and is below 4,125 feet.

In the Producing Fields

The producing fields had little news out of the routine for the week. On the Iles Dome in Moffat County, the Texas Production Co.'s No. 36 Lloyd, SE cor., Section 21-4n-92, is drilling at 1,190 feet, and the Midwest Refining Co.'s No. 24-SD Parkinson, SE NW, Section 22-4-92, is bottomed at 2,100 feet in brown shale and rigging up the 12½-inch casing. The Midwest's No. 3-SD Shaw, NE NE, Section 27-4-92, is bottomed at 3,067 feet and underreaming the 8¼-inch at 3,000 feet. On the Moffat Dome the Texas Production Co.'s No. 5 Walter Wick, Section 10-4-92, is still swedging the 6¼-inch casing. Total depth is 4,596 feet.

In Routt County, the Texas Production Co.'s No. 1 State-Oliver, Section 18-6n-86, Tow Creek Dome, is waiting for cement to harden, the 6¼-inch being set at 2,730 feet. Same company's No. 4 Belle Dennis, SE Section 7-6-86, the rotary test to the Sundance, is bottomed at 3,957 feet and cleaning out bridge at 1,870 feet. No. 5 Henry Dennis, NW cor., Section 17-6-86, is drilling at 1,425 feet.

Wyoming

While Wyoming reported several completions this week, these mostly were in proven territory. The Ohio Oil Co.'s No. 2 Posten, NW NW, Section 22-16-104, on the south slope of Quaking Asp Mountain in the south central Baxter Basin district in Sweetwater County, was completed as a gas well at 2,860 feet with an open flow of 68,000,000 feet from the Dakota formation. The well was shut in pending the construction of the proposed gas line into Utah. The Ohio company also had a completion in the Oregon Basin Field in Park County in its No. 6 Sonners, NW cor., Section 8-51-100, at 3,552 feet with an initial production of 200 bbls. It topped the Embar at 3,245 feet. This well is on the neck connecting the north and south domes and is an offset to the acreage of the Cody Petroleum Co. which is drilling up its proven territory on the west flank of this neck. The Union Oil Co. of California's No. 1 Taylor, NE cor. NW, Section 22-47-100, was recompleted at 3,780 feet with an initial production of 21 bbls. after a shot. It was shot last spring at 3,712 feet and responded after cleaning with an initial production of 37 bbls. Later it was decided to deepen it. The hole went through the Embar and Tensleep and into the Amsden, or the Madison lime. The Embar was topped at 3,232 feet and the Tensleep at 3,486 feet. The Wyoming Associated Oil Co.'s No. 16-SD, NW Section 35-40-79 (Mountain Producers Corp.), in the Salt Creek Field, the Sundance sand well reported last week as making around 5,000 bbls. in 30 hours, was completed at 2,870 feet. It flowed 3,060 bbls. in the first 24 hours. Another Salt Creek completion was the Midwest Oil Co.'s No. 15-LS, NE Section 34-40-78, a Lakota shale well deepened to the Lakota sand and completed at 2,302 feet. It has not yet been tested. In Crook County, in the northeastern corner of the State, H. D. Curtis' No. 1, NW SW, Section 4-53-65, found water in the Embar at 700 feet and was abandoned.

M. C. Weisman has made a location for a deep test on the North Casper Creek Dome in Natrona County in his No. 3, SE cor., Section 36-37-82. The Tensleep is expected at 3,200 feet. Nos. 1 and 2 were gas wells in shallower horizons.

In Park County drilling operations in the Oregon Basin Field revealed no important changes. Outside of that area the Oregon-Wyoming Oil & Gas Co.'s No. 1, SE NE SW, Section 30-52-101, Horse Center Dome, reported a slight showing of oil in the top of the Embar at 685 feet, but at 825 feet 500 feet of water was standing in the hole. It is drilling below 905 feet. The California Exploration Co.'s No. 1 Pitchfork, NW NE, Section 14-48-102, on the Pitchfork structure, joint with the Producers & Refiners Corp., lost its hole at 1,270 feet, total depth, and is skidding the rig to a new location 90 feet to the south.

Trouble in Deep Hole

The Ohio Oil Co.'s No. 1 Pulley, NW NW, Section 27-52-101, on the Shoshone anticline near Cody, which has been bottomed at 4,572 feet in the top of the Embar for several weeks with 2,000 feet of oil in the hole before cementing the 4¾-inch, is still having trouble with a crooked hole and the 4¾-inch is being pulled. The Producers & Refiners' No. 1, NE NE, Section 7-57-97, on the Sage Creek Dome, is drilling at 512 feet in shale.

In Big Horn County, the Producers & Refiners Corp.'s No. 3, NW NW, Section 24-56-98, on the Garland Dome, joint with the Kinney-Coastal Oil Co., which has been troubled with cavy ground, casing trouble and other difficulties, has sidetracked a joint of 8¼-inch which could not be recovered and is preparing to cement it off. Total depth is 2,708 feet. The Prairie Oil & Gas Co.'s No. 1 Chilcote, Section 35-56-93, Little Sheep Mountain structure, is drilling at 325 feet in gray lime.

In Albany County, the Union Oil Co. of California's No. 1 Herrick, NW NE SW, Section 1-16-76, Little Laramie structure, a test to the Dakota series, is drilling at 460 feet.

Drilling Below the Gas

In Carbon County, the Producers & Refiners Corp.'s No. 7, Section 7-26-89, Wertz Dome, a deep test below the Dakota, is bottomed at 3,497 feet where a flow of gas has been killed and drilling is about to resume. The 8¼-inch is at 3,471 feet. Same company's No. 1, Section 14-25-89, Sherrard Dome, cemented the 10-inch at 2,076 feet, below a water horizon and above a gas horizon that made 10,000,000 feet. Total depth is 2,091 feet. Gas was bradenheaded off.

In Sweetwater County, the Ohio Oil Co.'s No. 1 Humphreys, Section 2-12-101, Canon Creek Dome, is drilling at 680 feet, and the Prairie Oil & Gas Co.'s No. 1 Tucker, Section 18-13-99, Alkali Butte Dome, is drilling at 2,165 feet in gray shale. The Producers & Refiners Corp.'s No. 1, Section 26-20-104, North Baxter Basin, joint with the Marland Production Co., is bottomed at 3,476 feet and troubled with a frozen gas line. The same company's well in Section 26-17-104, South Baxter Basin, is drilling at 145 feet, and the Tower Petroleum Co.'s No. 1, Section 31-15-103, is drilling at 4,655 feet. It is in the Mowry shale and at 4,550 feet had a show of wet gas. The Prairie Oil & Gas Co.'s Baxter Basin well on Section 13-17-104, is drilling at 400 feet. The Vermillion Oil Syndicate's No. 1, SW cor., Section 16-12-99, Hiawatha Dome, is drilling at around 700 feet.

In Sublet County, the California Co.'s No. 1 Wyss, Section 12-32-115, on the South Cottonwood Dome, is fishing for bit at 1,005 feet, and same company's No. 1 Bushell, Section 11-29-115, Snyder Basin, is bottomed at 1,987 feet underreaming and cleaning out. The same company's No. 1 Union Pacific, Section 7-17-116, Muddy Creek Dome in Uinta County, is drilling at 1,883 feet in gray limey sand.

In Lincoln County, the Midwest Refining Co.'s Waterfall test on Section 35-22-115, which has had more than its share of water, is drilling at 1,695 feet in red and green shale. The water increased at 1,655 feet. The Quad-States Oil Co.'s No. 1, Section 11-19-116, on La Barge Creek, is drilling at 2,050 feet in broken sand, probably the Nuggett. The Fontelle Oil Co.'s No. 1, Section 1-24-113, is drilling below 1,475 feet in dark brown shale. It had water at 1,065-75 and 1,225 feet.

In Fremont County, the Texas Production Co.'s No. 1, Section 1-33-95, Alkali Butte Dome, is putting on a flowing device to regulate the flow. The well has been making from 100 to 200 bbls. a day, but is expected to go up considerably when work under way is completed. A tentative location has been made for another well in Section 36-34-95, about half a mile to the north and the starting of work is waiting for official approval. Herman B. Gates and others is moving in for a well in Section 6-33-94, to the east of the discovery. This is near a well drilled to the Shannon sand at 835 feet a number of years ago and which has been shut in as a small producer.

Montana

The proven area of the Pondera Field in northern Montana was extended considerably this week when the Sontag-Miller No. 1, NE Section 11-27-4, came in a producer. First estimates on the output of the well put production at 60 bbls. The Sontag well is 1½ miles north and east of the nearest producing well, and the sand was found at a little more than 1,920 feet. If the intervening territory can be considered as proven by this strike, the area of the field is almost doubled. This is by far the most interesting development of the week in the Pondera Field.

The California Petroleum Corp., which last week reported the completion of its No. 2 Pondera Valley State Bank, has another producer on this lease, No. 3, located on the NE of Section 15-27-4. It will make about 100 bbls. The Texas Pacific Coal & Oil Co. completed No. 7 Hirschberg on the SE of Section 15, and production will be in the neighborhood of 50 bbls. The Continental Development Co.'s No. 2 Wheeler, which came in a small well some time ago, is being deepened. Operators are preparing for zero weather by burying lines, etc., and the next cold weather should find conditions such that the work will not be hampered. The Montana Power Co. is extending its lines to provide additional operators with power. The Texas Pacific is erecting an 80,000-bbl. storage tank at its tank farm near Conrad. The Pondera Field is a busy place, with almost 50 wells drilling.

The "56" Petroleum Corp. completed a small well in Section 5-25-1 in the Bannatyne Field, the first completion recorded for this district for some time. It will make about 10 bbls. a day.

Kevin-Sunburst

In the Kevin Sunburst Field, the Peerless Development Co.'s No. 33 Steele, offsetting the Hibbings Faunce gusher, came in a dry hole. This was a great disappointment, as the Hibbings well was thought to have opened a new pool in this part of the field. The Ohio Oil Co. brought in a gas well on the Berg lease with a production estimated at 1,500,000 feet. The Maharg Oil Co.'s No. 5 Goddertz in Section 22-25-3, is reported in a 20-bbl. well. The Big Six Oil Co. found oil in a stray sand at 1,305 feet in Section 29-35-1, Zachor lease, but the amount of oil is not known at this time. The best well of the week in the Kevin-Sunburst Field was the Kewanee Putnam No. 9 in Section 32-35-1, which is rated at 200 bbls. The Kalispell Oil & Gas Co. has a good gas well in Section 16-34-1 and the Wildrose Oil Co.'s No. 3 Hector in Section 34-34-1 is also a gasser.

The Northern Natural Gas Development Co., which has drilled a large number of wells in the Kevin district to supply gas for the Great Falls line, has changed its name to the Climax Natural Gas Co., and has announced its intention to participate in all branches of the industry—producing, manufacturing, buying and selling oil, gas and petroleum products.

Reports from wildcat districts show little of special interest. The Judith Basin Oil & Gas Co. well on the Arrow Creek structure reports a strong showing of gas in the Colorado shale, but the

crew has been unable to shut off water in the hole. The Big Dome Oil & Gas Co. is reported about to resume drilling on the Bowdoin Dome north of Saco in the north central part of the State. This well has stood idle for some months at 1,500 feet.

The Sunburst Oil & Refining Co. test on the Bears Den structure in northern Montana was spudded this week. The first hole, begun a month ago, was lost on account of a bad fishing job. The Bears Den Oil Co. is also interested in this well.

ROCKY MOUNTAIN PRODUCTION
Runs From Field Week Ended November 10,

WYOMING	
Salt Creek	37,160
Big Muddy	2,650
Grass Creek	2,340
Elk Basin	870
Ferris	60
Rock River	2,590
Lance Creek	330
La Barge	2,360
Poison Spider	780
Oregon Basin	5,400
Osage	440
Mule Creek	590
Lander	540
Byron	30
Lost Soldier	3,770
Simpson Ridge	70
Dutton Creek	50
Pilot Butte	240
Rex Lake	150
Hamilton Dome	720
Total Wyoming	61,140
MONTANA	
Cat Creek	1,510
Lake Basin	350
Kevin-Sunburst	8,300
Pondera	1,600
Total Montana	11,760
COLORADO	
Florence	1,226
Moffat	1,245
Fort Collins	2,375
Hes Dome	1,891
Rangely	100
Tow Creek	466
Boulder	25
Total Colorado	7,328
NEW MEXICO	
Rattlesnake	1,748
Hogback	500
Artesia	1,065
Cap Rock	187
Table Mesa	114
Total New Mexico	3,614
Total Rocky Mountain	83,842

OKLAHOMA FIELDS

(Continued from Page 52)

swabbed 450 bbls. from Cromwell sand at 2,732-49 feet. Westheimer & Daube's No. 1 Patterson, NW cor. Section 29-5-8, is dry and abandoned at 1,462 feet.

Pottawatomie County

Amerada Petroleum Corp. and Barnsdall Oil Co. have dug the cellar for No. 1 Wallace, SW cor. Section 17-8-5, Maud area. Gypsy Oil Co. has dug the cellar for No. 2 Miller, SE cor. Section 18-8-5. Amerada Petroleum Corp.'s No. 1 Green, NW cor. Section 20-8-5, is a cellar. Gypsy Oil Co. is building the rig for No. 4 Le Clair, SW cor. SE, Section 23-7-4, St. Louis Pool. Magnolia Petroleum Co. moved the rig to the location for No. 3 Cherry "B," SE cor. SW NE, Section 26-7-4. Location has been made for No. 1 T. Fyke "E," SW cor. NW, Section 28-7-5. Shaffer Oil & Refining Co. made location for No. 3 Tolon, SW cor. Section 30-7-5.

Gypsy Oil Co.'s No. 3 Le Clair, SE cor. SW SE, Section 23-7-4, St. Louis Pool, made 955 bbls. from Simpson sand at 4,158-71 feet. No. 12 Blandin, SE cor. SW SW, Section 24-7-4, swabbed 240 bbls. from Simpson sand at 4,135-69 feet. McCulloch Oil Co.'s No. 2 Smith, NE cor. NW SE, Section 25-7-4, has been completed for 280 bbls. in Simpson sand at 4,195-4,240 feet. Sinclair Oil & Gas Co.'s No. 1 Neeley "B," NW cor. SE SW, Section 25-7-4, made 910 bbls. from Simpson sand at 4,475-4,515 feet. Magnolia Petroleum Co.'s No. 3 Shipshewohno, SW cor. SE NE, Section 19-7-5, swabbed 305 bbls. from Wilcox sand at 4,158-60 feet.

T. B. Slick's No. 3 Youts, SW cor. SE SW, Section 19-7-5, made 520 bbls. from Wilcox sand at 4,218-28 feet. Magnolia Petroleum Co.'s No. 1 T. Fyke "B," NW cor. NE SE, Section 20-7-5, was completed for 1,657 bbls. in Wilcox sand at 4,144-55 feet. Indian Territory Illuminating Oil Co.'s No. 1 Weams, NW cor. SW SW, Section 21-7-5, drilled to 4,303 feet in Wilcox sand and plugged back to Simpson sand at 4,200 feet and made 176 bbls. from Simpson and Hunton. Independent Oil & Gas Co. and White Eagle Oil & Refining Co.'s No. 1 S. Lowe, NW cor. SE SW, Section 29-7-5, is dry and abandoned at 4,456 feet in Wilcox sand.

Magnolia Petroleum Co.'s No. 1 T. Fyke "," SW cor. NE NW, Section 29-7-5, swabbed 692 bbls. from Simpson sand at 4,445 feet after plugging back from 4,460 feet in Wilcox sand. Sinclair Oil & Gas Co.'s No. 2 Nadash, SE cor. NE SW, Section 29-7-5, was completde for 245 bbls. in Simpson sand at 4,212 feet after plugging back from Wilcox sand at 4,304 feet. Independent Oil & Gas Co. and McCulloch Oil Co.'s No. 1 Mahtat-Was, NW cor. NE SE, Section 30-7-5, made 90 bbls. from Wilcox sand at 4,445 feet. Mid-Kansas Oil Co.'s No. 2 Lunay, NE cor. NW NW, Section 30-7-5, swabbed 540 bbls. from Simpson sand at 4,134-47 feet.

Seminole Production

The production of the Greater Seminole area by companies and leases on Thursday, November 8, follows:

Little River Pool

Company, farm—	Location	Wells	Prod.
Amerada:			
Nitey	2- 7-6	3	955
Amerada-Wilcox:			
Fore	35- 8-6	2	280
Barnsdall:			
Cotcha	23- 7-6	2	1,260
Hotulke	22- 7-6	2	414
Walker	4- 7-6	1	465
Blackwell:			
Baker	11- 7-6	4	1,510
Nitey	35- 8-6	6	1,307
Talley	14- 7-6	3	730
Bryan & Emery:			
Walker	4- 7-6	1	13
Carter:			
Cotcha, M.	23- 7-6	3	272
Cudjo, L.	23- 7-6	2	190
Fish	36- 8-6	4	510
Harjo, C.	11- 7-6	3	6,507
Harjo, M.	13- 7-6	2	937
Jackson	11- 7-6	4	1,780
Larney	24- 7-6	3	1,395
Lena	10- 7-6	1	935
Moore	11- 7-6	2	785
Tewee	14- 7-6	5	3,580
Thomas	11- 7-6	1	397
Wilson	12- 7-6	2	615
Champlin:			
Tewee	14- 7-6	2	1,975
Continental:			
Cosar	36- 8-6	7	1,775
Cosar, M.	25- 8-6	1	422
Continental & Fisher:			
Milsey	11- 7-6	2	2,510
Empire:			
Charty	24- 7-6	1	720
Coker	13- 7-6	1	1,127
Sandlin	3- 7-6	1	10
Gypsy:			
Brown, C.	33- 8-6	2	797
Brown, M.	33- 8-6	1	1,062
Campbell	33- 7-6	2	65
Conard	22- 7-6	2	887
Cosar, M.	25- 8-6	1	....
Cosar, W.	36- 8-6	2	267
Cotcha	23- 7-6	4	1,727
Denmark	11- 7-6	4	3,120
Hulhoke	14- 7-6	10	4,867
Mungee	1- 7-6	1	15
Pottie	35- 8-6	4	827
Renton	11- 7-6	3	790
Independent:			
Davis, R.	13- 7-6	3	1,830
Tewee	14- 7-6	6	2,968
Williams	15- 7-6	1	775
Independent & Highway:			
Harris	23- 7-6	8	2,837
Independent & White Eagle:			
Davis	2- 7-6	4	945
I. T. I. O.:			
Campbell	1- 7-6	1	176
Dungan	35- 8-6	3	850
House, M. A.	1- 7-6	1	36
House, W. E.	1- 7-6	1	32
House "B"	2- 7-6	4	700
Hull	26- 8-6	3	619
Jackson	1- 7-6	3	785
McCulla	1- 7-6	3	501
Nitey	2- 7-6	6	178
Phoebe "A"	36- 8-6	3	216
Phoebe "B"	36- 8-6	4	172
Reed	1- 7-6	1	25
Soketheche	1- 7-6	3	602
Magnolia:			
Cruse	2- 7-6	4	442
Denby	11- 7-6	3	1,360
Dixon	31- 8-7	1	3
Harjo, A.	14- 7-6	2	15
Harjo, B.	14- 7-6	2	960
Pottie	35- 8-6	4	516
Reed, E.	31- 8-7	1	28
Reed, I.	22- 7-6	3	1,000
McCulloch & Sands:			
Harrison	4- 7-6	1	70
Mid-Continent:			
Brunner	11- 7-6	4	1,970
Eleck	23- 7-6	1	175
Smith	5- 7-7	1	2,415
Wadsworth	36- 8-6	7	285
W. B. Pine:			
Hoyecha	26- 8-6	6	2,427
Pine-Phillips:			
Pottie	35- 8-6	2	277
Prairie:			
Chilcoat	25- 8-6	3	750
Dungan	35- 8-6	1	40
Gibson	14- 7-6	5	2,620
Harris	14- 7-6	3	1,390
House	2- 7-6	4	350
Moppin	24- 7-6	1	430
Talley	14- 7-6	4	2,045
Prairie & Amerada:			
Sunny	14- 7-6	8	5,695
Pure:			
Cotcha	14- 7-6	9	4,245
Harjo	11- 7-6	4	1,112
Reiter-Foster:			
Bunyard	14- 7-6	4	3,455
Roxana:			
Caesar	11- 7-6	1	30
Hotulke	23- 7-6	4	1,021
Johnson	13- 7-6	3	2,345
Shaffer:			
Narcome	36- 8-6	2	210
Sinclair:			
Cosar	30- 8-6	3	730
Haney	12- 7-6	1	52
Tewee	14- 7-6	2	2,040
Sinclair & Kingwood:			
Pompey	24- 7-6	1	280
Skelly:			
Carl	14- 7-6	2	1,850
Slick:			
Reed	13- 7-6	1	1,280
Williams	15- 7-6	2	560
Wood	26- 7-6	1	485
Snowden-McSweeney:			
Tiger	13- 7-6	3	1,853
Superior:			
Potulka	31- 8-6	1	5
Soketheche	1- 7-6	1	....
Texas:			
Brooks	25- 8-6	1	....
Coker	1- 7-6	3	470
Janey	11- 7-6	3	1,040
Texas & Independent:			
Hotulke	23- 7-6	4	2,075
Tidal:			
House	1- 7-6	3	450
Johnson	1- 7-6	1	25
Twin States:			
Lowe	25- 8-6	1	110
Total		297	113,023

Maud Pool

Amerada:			
Gossland	8- 8-5	1	....
Barnsdall:			
Fife	14- 8-5	1	1,160
Gypsy:			
Bourassa	7- 8-5	1	....
I. T. I. O.:			
Simpson	10- 8-5	1	48
State	16- 8-5	1	....
Pure:			
Lindly	18- 8-5	1	....
Total		6	1,208

Mission Pool

Carter:			
Fuswa	18- 8-6	1	....
Micco	8- 8-6	1	....
Gypsy:			
Baby	6- 8-6	1	17
Barkus	6- 8-6	1	....
Dosar	7- 8-6	1	....
Mission	5- 8-6	1	....
Mosar	1- 8-5	1	....
Marland:			
Maines	7- 8-6	1	....
Mid-Kansas:			
Moore	7- 8-6	1	60
Roxana:			
Maines	7- 8-6	1	....
Twin States:			
Hayes	8- 8-6	1	50
Total		11	127

Bowlegs Pool

Amerada:			
Roscoe	15- 8-6	8	1,370
Atlantic:			
Baker	10- 8-6	4	415
Fleet	23- 8-6	3	225
Grayson	13- 8-6	4	615
Jones, A.	16- 8-6	2	56
Jones, C.	9- 8-6	1	117
Barnsdall:			
McNac	28- 8-6	1	22
Murrow	11- 8-6	4	394
Carter Oil:			
Bowlegs	15- 8-6	4	1,007
Burden	23- 8-6	2	200
Harjoche	14- 8-6	6	787
Hilly	23- 8-6	3	590
Jones	11- 8-6	4	600
Walker	15- 8-6	4	620
Wise	23- 8-6	11	2,025
Dixie:			
Culley	11- 8-6	1	90
Empire:			
Lacy	14- 8-6	6	535
Wise	23- 8-6	2	210
Gypsy:			
Bowlegs	22- 8-6	1	115
Bradley	9- 8-6	1	3
Cumsey	10- 8-6	4	835
Grayson	13- 8-6	4	272
Harjoche	10- 8-6	3	927
Jones	11- 8-6	1	100
Walker	15- 8-6	7	692
Wise	23- 8-6	2	190
I. T. I. O.:			
Barnett	24- 8-6	2	291
Barnett "B"	23- 8-6	1	188
Billington	22- 8-6	5	366
Bowlegs	22- 8-6	10	1,501
Davis	13- 8-6	4	716
Fay	13- 8-6	9	1,550
Goforth	15- 8-6	12	1,345
Livingston	15- 8-6	10	2,206
Lizzie	13- 8-6	3	323
Walker	15- 8-6	8	925
Williams	12- 8-6	1	220
Wilmott	15- 8-6	4	280
Work	24- 8-6	1	113
Youngblood	24- 8-6	2	86
Magnolia:			
Davis	13- 8-6	3	396
Davis, M.	13- 8-6	1	196
Hammond	10- 8-6	7	885
Rhodos	12- 8-6	5	1,792
Van Buskirk	9- 8-6	2	400
McCulloch:			
Bowlegs	22- 8-6	2	160
Mid-Continent:			
Baker	10- 8-6	4	589
Bowlegs	22- 8-6	1	6
Smith	12- 8-6	6	575
Minnehoma:			
Bowlegs	15- 8-6	4	366
Prairie:			
Gahagan	23- 8-6	4	365
Harber	10- 8-6	8	2,630
Jones	11- 8-6	4	325
Templeton	12- 8-6	5	2,030
Whitney	23- 8-6	4	610
Pure Oil:			
Reed	14- 8-6	14	3,354
Strother "D" 11 &	14- 8-6	4	312
Strother "F"	10- 8-6	7	2,667
Roxana:			
Taylor	16- 8-6	5	66
Shaffer:			
Lacy	14- 8-6	3	410
Sinclair:			
Cumsey	10- 8-6	4	928
Ellen	11- 8-6	6	815
Harjo	14- 8-6	3	520
Jones	9- 8-6	7	645
Taylor	10- 8-6	4	1,280
Taylor, W.	10- 8-6	3	589
Walker	22- 8-6	4	555
Slick:			
Jones	3- 8-6	1	290
Texas:			
Reed	14- 8-6	11	929
Tidal:			
Grayson	13- 8-6	4	350
Harjoche	10- 8-6	6	1,235
Twin States:			
Jones	11- 8-6	1	....
Total		311	49,383

Earlsboro Pool

Amerada:			
Anderson	15- 9-5	2	474
Cowden	4- 9-5	7	1,071
Rogers	3- 9-5	2	35
Atlantic & Sinclair:			
Foreman	18- 9-5	1	149
Barnsdall:			
Brown	10- 9-5	4	1,808
Bruner, F.	2- 9-5	3	316
Bruner, N.	10- 9-5	3	1,197
Cudjo	14- 9-5	1	23
Davis, D.	11- 9-5	3	242
Davis, J.	11- 9-5	4	1,758
Davis, M.	11- 9-5	2	62
Gibson	9- 9-5	8	1,825
Hern	15- 9-5	1	2
Ingram	1- 9-5	8	832
Pack, S.	10- 9-5	4	136
Peter	10- 9-5	4	85
Sango	1- 9-5	4	2,164
Sebalka	15- 9-5	1	314
Sullivan, H.	11- 9-5	1	3
Sull-Harjo	10- 9-5	2	31
Wasutke	12- 9-5	4	990
Burke-Grels:			
Wisner	6- 9-6	1	830
Carter:			
Davis	13- 9-5	2	205
James	6- 9-5	5	3,570
Sango	1- 9-5	1	5
Continental:			
Kays	2- 9-5	2	15
Spencer	12- 9-5	4	950
Empire:			
Barker	12- 9-5	1	85
Edmondson	3- 9-5	3	163
Gypsy:			
Bruner	10- 9-5	4	3,795
Carter, B.	11- 9-5	8	3,975
Earl	16- 9-5	1	8
Hunick	5- 9-5	1	2,519
Noble	12- 9-5	4	1,635
Peter	10- 9-5	3	286
Sango	1- 9-5	11	4,267
State	16- 9-5	4	1,075
Independent:			
Bruner	10- 9-5	3	465
Sullivan	10- 9-5	1	20
Knapp	8- 9-5	3	1,325
Independent-Margay:			
Gains	11- 9-5	8	565
Magnolia:			
Bryant	9- 9-5	6	413
Cowden	4- 9-5	4	19
Dixon	12- 9-5	1	22
Edmonson	3- 9-5	2	5
Folmsley	11- 9-5	7	689
Hyde	13- 9-5	1	1,511
Ingram	10- 9-5	1	18
Lena	10- 9-5	3	47
Seay	12- 9-5	9	2,328
Simpson	10- 9-5	4	425
Sparks	11- 9-5	7	797
Sullivan	12- 9-5	3	105
Mid-Continent:			
McCumber	9- 9-5	7	60
Rogers	5- 9-5	1	1,129
Mid-Kansas:			
Anderson	14- 9-5	3	55
Phillips:			
Dunaway	14- 9-5	1	25
Prairie:			
Baker	24- 9-5	1	50
Davis	13- 9-5	3	2,770
Graham, C.	2- 9-5	2	30
Graham, O.	10- 9-5	4	925
Stidham	11- 9-5	11	1,875
Roxana:			
Bayless	17- 9-5	1	14
Hearn	13- 9-5	1	112
Spencer	12- 9-5	2	1,426
Shaffer:			
Clark	1- 9-5	3	125
McCoy	36-10-5	1	1,020
Sinclair:			
Foreman	18- 9-5	1	15
Hollins	12- 9-5	1	50
Sango	2- 9-5	4	3,075
Skelly:			
Mays	1- 9-5	1	2,724
Shepard	6- 9-6	1	1,150
Spencer	12- 9-5	1	488
Skelly & Atlantic:			
Sherry	6- 9-6	2	1,617
Slick et al:			
Campbell	6- 9-6	2	2,946
Superior:			
Ingram	1- 9-5	1	938
Walker	2- 9-5	3	2,785
Texas:			
Anderson	2- 9-5	8	385
Brown	10- 9-5	8	495
James	6- 9-6	1	520
Rogers	5- 9-5	4	2,460
Wilmott	10- 9-5	7	607
Tidal:			
Walker	35-10-5	1	1,890
Watkins	9- 9-5	7	2,435
Twin States:			
Barker	12- 9-5	3	64
Hern	2- 9-5	4	210
Total		285	79,987

Seminole Pool

Amerada:			
Fixico	23- 9-6	4	428
Killingsworth	23- 9-6	4	460
Rentie	23- 9-6	3	373
Atlantic:			
Cudjo, N.	35- 9-6	3	540
Barnsdall:			
Carter	24- 9-6	7	355
Henry	14- 9-6	2	504
Jones	34- 9-6	4	1,210
Carter Oil:			
B. Carter	24- 9-6	2	160
F. Carter	23- 9-6	3	65
Creamer	34- 9-6	2	12
Cudjo, R.	35- 9-6	4	252

(Continued on Next Page)

Cudjo, W.	34- 9-6	1	30
Gilliland	27- 9-6	1	165
Grisso	23- 9-6	4	400
Grisso, M.	15- 9-6	1	170
Killings, G. F.	14- 9-6	4	62
Killings, M. E.	23- 9-6	12	4,275
Knapp	13- 9-6	3	37
Lukes	27- 9-6	5	1,000
Pounder	34- 9-6	2	132
Simpson	35- 9-6	2	185
Strothers	34- 9-6	4	547
Vierson	23- 9-6	2	10
Empire:			
Gross	25- 9-6	2	51
Wilson	34- 9-6	2	344
Gypsy:			
Butler	35- 9-6	4	790
Carter	24- 9-6	8	698
Cudjo	34- 9-6	4	217
Fixico	26- 9-6	7	150
Harjo	25- 9-6	3	610
Wolfe	26- 9-6	6	360
Independent:			
Fixico, P.	23- 9-6	3	465
Harjo	25- 9-6	2	35
Butler	35- 9-6	3	1,105
Fixico, T.	26- 9-6	6	452
Jones	26- 9-6	4	202
I. T. I. O.:			
Allen	25- 9-6	2	135
Bowlegs	26- 9-6	12	2,399
Goodin	23- 9-6	4	351
Harjo	23- 9-6	3	59
James	24- 9-6	2	223
Reed	24- 9-6	1	10
Kingwood:			
Johnson	22- 9-6	3	479
Magnolia:			
Boren	2- 8-6	1	....
Franks	25- 9-6	3	600
Mid-Continent:			
Rentie	14- 9-6	9	425
Tayeche	24- 9-6	7	205
Phillips:			
Strothers	27- 9-6	2	90
Prairie:			
Gross	25- 9-6	5	50
Mason	36- 9-6	1	65
Spencer	13- 9-6	1	10
Strothers	27- 9-6	8	2,150
Pure Oil:			
Strothers	26- 9-6	17	6,191
B. Strothers	36- 9-6	4	1,457
C. Strothers	34- 9-6	1	520
Roxana:			
Harber	22- 9-6	2	244
Lasley	22- 9-6	2	28
Sinclair:			
Carter	13- 9-6	2	25
Cudjo "A"	35- 9-6	6	622
Cudjo "B"	35- 9-6	4	820
Dicey	22- 9-6	2	100
Fixico	23- 9-6	4	960
Slick:			
Cudjo	35- 9-6	3	882
Franks	35- 9-6	6	1,319
Giblet	35- 9-6	3	1,425
Tiger	1- 8-6	1	49
Superior:			
Cudjo	35- 9-6	4	409
Texas:			
Mayhue	14- 9-6	1	270
Strothers	2- 9-6	1	120
Tidal:			
Carter	24- 9-6	4	511
Fixico	26- 9-6	6	1,370
Harjo	25- 9-6	3	240
Harjo, T.	23- 9-6	5	100
Turman:			
Cudjo	35- 9-6	4	663
Grisso	35- 9-6	1	95
Jones	34- 9-6	4	1,138
Total		286	41,687
Searight Pool			
Amerada:			
Johnson	4- 9-6	1	40
Strothers	3- 9-6	2	1,097
Barnsdall:			
Jackson	5- 9-6	1	30
Carter:			
Davis	4- 9-6	6	425
Frazier	3- 9-6	6	3,205
Johnson	3- 9-6	1	....
Kilker	2- 9-6	1	22
Mandler	2- 9-6	2	7
Scott	26-10-6	1	13
Gypsy:			
Cudjo	4- 9-6	3	567
Mid-Continent:			
Grayson	34-10-6	6	55
Saloche	33-10-6	5	805
Nevins	32-10-6	1	900
Pine:			
Lula	4- 9-6	1	22
Prairie:			
Cannon	33-10-6	1	5
J. Carter	10- 9-6	1	3
Houch	33-10-6	1	4
Kincaid	33-10-6	2	60
Wimer	22-10-6	1	17
Pure:			
Aldridge	3- 9-6	4	1,325
Roxana:			
Strothers	3- 9-6	4	148
Sinclair:			
Polly	3- 9-6	4	1,240
Superior:			
Varnum	4- 9-6	1	38
Texas:			
Fleet	4- 9-6	1	30
Twin States:			
Varnum	4- 9-6	2	30
Wilcox:			
Chupco	4- 9-6	8	943
Total		67	11,031

Totals

Field—	Wells	Prod.
Little River	279	113,023
Maud	6	1,208
Mission	11	127
Bowlegs	311	49,383
Earlsboro	286	79,987
Seminole	286	41,687
Searight	67	11,031
Grand total	1,263	296,446

DEATH OF C. P. BAKER

Charles P. Baker, pioneer oil operator in the Duncan, Okla., Field, died in Duncan, Thursday, November 8. The funeral and burial were conducted in Holden, Mo.

30,000 ACRES OF OSAGE LEASES WILL BE AUCTIONED DECEMBER 11

A public auction of Osage oil leases will be conducted at Pawhuska under the supervision of the United States Government on Tuesday, December 11.

One hundred eighty-nine tracts, all but five of which are full quarter sections (160 acres) and all lying in Osage County, Oklahoma, will be sold to the highest bidders. In all, 30,079.65 acres will be put up by Colonel Waters, the famous Skeedee, Okla., auctioneer, 15,200 acres on the east side of the county and 14,879.65 acres on the west side.

The value of a few of the tracts on the west side will be determined by the results of the drilling of certain wells now under way which lie near the leases to be offered, but as a general rule the west side acreage will be wildcat or semiwildcat, and no doubt will command the usual bargain prices which Osage leases have realized in recent sales.

At the most recent sale of Osage leases many tracts were sold at prices ranging from $100 to $300. A few Burbank properties were bid in at relatively high prices. In the coming sale a few properties in the general Burbank area are to be offered, these being Tract 156, SW Section 1-26-6; Tract 157, SE Section 24-26-6; Tract 158, NE Section 32-26-6, and the tract just east of it, NW Section 34-26-6; Tract 160, NE Section 17-27-6; Tract 161, NE Section 21-27-6; Tract 162, Section 22-27-6, and Tract 163, SW Section 23-27-6; Tract 172, NE Section 3-26-5; and Tract 173, SE Section 3-26-5. Some of these tracts may be attractive enough to cause competitive bidding and what they will bring will depend upon how keen the desire is to possess them. Exeperience has shown that in the purchase of Osage leases competition has been the means of sending the final selling price up to figures above that which any of the competitors considered the lease was worth, so that there is no way of judging in advance how much any property will bring. It will depend upon how many companies want it.

The leases will all be for five-year periods instead of one year—that is, the regular custom of requiring a purchaser to drill a well within one year has been suspended and the buyer will be given five years in which to drill his first well.

Following are the tracts to be offered:

Tract	Description	Acreage
1	NW 30-22-12	160
2	NE 27-20-11	160
3	SE 27-20-11	160
4	SW 27-20-11	160
5	SW 12-21-11	160
6	NW 13-21-11	160
7	SW 13-21-11	160
8	NE 14-21-11	160
9	SE 14-21-11	160
10	NE 28-21-11	160
11	NW 28-21-11	160
12	NE 11-20-10	160
13	NW 11-20-10	160
14	SE 11-20-10	160
15	SW 11-20-10	160
16	NE 8-21-10	160
17	NW 9-21-10	160
18	NE 1-22-10	160
19	SE 1-22-10	160
20	NW 16-22-10	160
21	NE 17-22-10	160
22	SE 17-22-10	160
23	NW 22-23-10	160
24	NE 29-24-10	160
25	SW 33-24-10	160
26	NE 5-25-10	160
27	NW 5-25-10	160
28	SE 5-25-10	160
29	SW 5-25-10	160
30	SE 15-26-10	160
31	SE 21-21- 9	160
32	NE 29-21- 9	160
33	SW 29-21- 9	160
34	SW 12-22- 9	160
35	NE 13-22- 9	160
36	NW 13-22- 9	160
37	SW 1-23- 9	160
38	SE 2-23- 9	160
39	NE 10-23- 9	160
40	SE 10-23- 9	160
41	NW 27-23- 9	160
42	SW 28-23- 9	160
43	NW 33-23- 9	160
44	NE 34-23- 9	160
45	SE 8-24- 9	160
46	NE 9-24- 9	160
47	NW 10-24- 9	160
48	SW 6-25- 9	160
49	NW 7-25- 9	160
50	NW 8-25- 9	160
51	NE 14-25- 9	160
52	NW 15-25- 9	160
53	NE 16-25- 9	160
54	NE 8-26- 9	160
55	SW 10-26- 9	160
56	NW 15-26- 9	160
57	SE 19-26- 9	160
58	NE 14-21- 8	160
59	NW 19-22- 8	160
60	SW 19-22- 8	160
61	SE 27-22- 8	160
62	SW 27-22- 8	160
63	NE 3-23- 8	160
64	NW 3-23- 8	160
65	SW 6-24- 8	160
66	SE 7-24- 8	160
67	SW 7-24- 8	160
68	NW 8-24- 8	160
69	SW 13-24- 8	160
70	NW 26-24- 8	160
71	NW 24-24- 8	160
72	NW 29-24- 8	160
73	SE 1-25- 8	160
74	NE 12-25- 8	160
75	NE 15-25- 8	160
76	SE 16-25- 8	160
77	SW 17-25- 8	160
78	NE 23-25- 8	160
79	NW 23-25- 8	160
80	NE 2-26- 8	160
81	NW 2-26- 8	160
82	SE 2-26- 8	160
83	NE 10-26- 8	160
84	SE 10-26- 8	160
85	NE 25-26- 8	160
86	NE 26-26- 8	160
87	NW 32-26- 8	160
88	SW 32-26- 8	160
89	NE 11-27- 8	160
90	NW 12-27- 8	160
91	SW 12-27- 8	160
92	NW 27-27- 8	160
93	NE 28-27- 8	160
94	NW 8-28- 8	160
95	SW 8-28- 8	160
	WEST SIDE	
96	NE 3-21- 7	160
97	NW 3-21- 7	160
98	SE 3-21- 7	160
99	SW 3-21- 7	160
100	NE 3-22- 7	160
101	NW 3-22- 7	160
102	SE 3-22- 7	160
103	SW 3-22- 7	160
104	SE 2-23- 7	160
105	SW 3-23- 7	160
106	SE 13-23- 7	160
107	SW 15-23- 7	160
108	NE 24-23- 7	160
109	SW 2-24- 7	160
110	NW 5-24- 7	160
111	SW 5-24- 7	160
112	SE 9-24- 7	160
113	NW 11-24- 7	160
114	NE 12-24- 7	160
115	SE 12-24- 7	160
116	NE 16-24- 7	160
117	NE 31-24- 7	160
118	NW 31-24- 7	160
119	SE 31-24- 7	160
120	SW 31-24- 7	160
121	SE 35-24- 7	160
122	NE 7-25- 7	160
123	NW 7-25- 7	160
124	NE 9-25- 7	160
125	SE 9-25- 7	160
126	NW 10-25- 7	160
127	SW 10-25- 7	160
128	SE 26-25- 7	160
129	SW 26-25- 7	160
130	SE 19-26- 7	160
131	NW 30-26- 7	160
132	NE 32-26- 7	160
133	SE 32-26- 7	160
134	NW 33-26- 7	160
135	SW 33-26- 7	160
136	NE 12-27- 7	160
137	NW 12-27- 7	160
138	SE 12-27- 7	160
139	SW 12-27- 7	160
140	NE 25-27- 7	160
141	NW 25-27- 7	160
142	SE 25-27- 7	160
143	SW 25-27- 7	160
144	NE 8-23- 6	160
145	NW 8-23- 6	160
146	SE 8-23- 6	160
147	SW 8-23- 6	160
148	NE 23-23- 6	160
149	NW 23-23- 6	160
150	NW 11-24- 6	160
151	SW 11-24- 6	160
152	NW 19-24- 6	160
153	SW 19-24- 6	160
154	NE 6-25- 6	160
155	SE 6-25- 6	160
156	SW 1-26- 6	160
157	SE 24-26- 6	160
158	NE 33-26- 6	160
159	NW 34-26- 6	160
160	NE 17-27- 6	160
161	NE 21-27- 6	160
162	SE 22-27- 6	160
163	SW 23-27- 6	160
164	NE 9-24 -5	160
165	Fr. SE 9-24- 5	146.90
166	NW 10-24- 5	160
167	Fr. SW 10-24- 5	143.55
168	NE 25-24- 5	160
169	Fr. NW 24-24- 5	111.85
170	NE 13-25- 5	160
171	SE 13-25- 5	160
172	NE 3-26- 5	160
173	SE 3-26- 5	160
174	NE 9-24- 4	160
175	Fr. NW 9-24- 4	130.15
176	SE 9-24- 4	160
177	Fr. SW 9-24- 4	106.20
178	NE 7-25- 4	160
179	NW 7-25- 4	160
180	SE 7-25- 4	160
181	SW 7-25- 4	160
182	NE 2-25- 3	160
183	SE 2-25- 3	160
184	NW 3-25- 3	160
185	SW 3-25- 3	160
186	NE 23-25- 3	160
187	NW 23-25- 3	160
188	SE 23-25- 3	160
189	SW 23-25- 3	160
Total		30,079.65
East Side		15,200
West Side		14,879.65

OIL'S USE OF AIRCRAFT IS GROWING VERY FAST

(Continued from Page 37)

finery he has continued to use the airplane, which enables him to manage both plants without sacrificing the interests of either.

Jack Ballagh, secretary of the Patterson-Ballagh Corp., Los Angeles, recently utilized a United States air-mail plane in making a quick delivery in response to a hurry-up order. One evening a long-distance telephone message from a Wyoming oil producer urged immediate shipment of 100 rubber protectors. The next morning Mr. Ballagh was on his way to Wyoming in one of the planes of the Western Air Express. He left Los Angeles at 7:30 o'clock, arriving in Salt Lake City six hours later. That evening he was in Wyoming delivering the 100 rubber protectors.

Erle P. Halliburton, whose oil-field inventions have played an important part, was a pioneer in the practical use of the airplane. He has established his own airport and hangar in Duncan, Okla., and calls for his testing outfit or other appliances are responded to regularly by air.

Likes It as Sport, Too

Mr. Halliburton is said to be turning his inventive genius to certain phases of aviation and his interest in airships has extended beyond their purely commercial use. In the recent transcontinental Class C air race, which was a part of the national air races, he won the derby with one of his two 400-horsepower, 5-passenger ships, making the trip from New York to Los Angeles in 24 hours, 9 minutes, 1 second total flying time. Mr. Halliburton rode in the plane.

The marketing department of the oil business has found a helpful friend in the airplane. The Kendall Refining Co., with headquarters in Bradford, Pa., has a fleet of six airships devoted largely to promoting the sale of the company's aircraft lubricating oil. This adjunct to its marketing system has proved most efficacious, and the company's aviation oil division is reported to have become firmly established. The Texas Pacific Coal & Oil Co., Fort Worth, Tex., also uses an airplane in pushing the sale of its aircraft lubricant. The Standard Oil Co. of Indiana was a pioneer in the use of airships in its sales department and in transporting executives from one point to another. It recently acquired its sixth ship.

The Chestnut & Smith Corp, Tulsa, has put the airplane to a distinctly new use in promoting the sale of its natural gasoline by fitting up a cabin-type ship as a traveling office, with desk, typewriter, files and other equipment for conducting business. In this aerial office Fred Foster, in charge of the company's aviation gasoline division, flies over the whole country.

Airplane in Drilling Operations

The airplane is serving a growing number of drilling contractors, who thus are able to keep in touch easily with strings of tools running in widely separated spots. The Noble-Olson Drilling Co. of Tulsa has been using the airship exclusively for the last six months and recently bought its second one. Arthur Olson, one of the members of the firm, frequently takes his wife and son with him on his flights, and he is soon to obtain a pilot's license. The Loffland Brothers of Tulsa have operated a ship for two years without an accident of any kind to either the ship or its passengers. Thomas Loffland has developed special interest in flying and attends all major aeronautical events in the United States. Hugh West, Tulsa drilling contractor, uses his own plane.

The importance of prompt action when a new hot spot is found does not need to be pointed out to any oil man who has participated in a frenzied race for leases on land near a gusher. The winner is the man who gets on the ground first and thus has the pick of the available leases, and nowadays that man gets there by flying.

Manufacturers of oil-field equipment have been active buyers of airplanes in the last year, resulting in marked improvement of service through ability to make quick deliveries of emergency supplies.

It is expected that the next few years will see an enormous increase in the use of aircraft in the oil industry and associated businesses.

OKLAHOMA'S PROMISING MAGNETOMETER AREAS

(Continued from Page 42)

of the geological sections are missing, that certain combinations of the other formations give rise to a local battery action in the vicinity of the structure. It would also seem that in view of the fact that since the whole area is magnetically low that the effect of the well casings can be neglected.

In direct contrast to the above relation between the magnetic reliefs and the geological structure, the reader's attention is called to Plate 7. Here is shown a generalized cross section from Wewoka to the Oklahoma-Kansas border line. Above this is shown a profile of magnetic intensities along the same line. Aside from the magnetic high at Okemah for which the generalized sections shows no apparent cause, the magnetometer readings at Tulsa, Claremore (no reading at Collinsville), and Nowata follow rather closely the uplifts in the granite, for we find a magnetic high and granite uplift in the vicinity of Tulsa and another magnetic high corresponding to the granite uplift at Nowata. Between these two places the magnetometer shows a low. The reader is also referred to the illustrations of the checks obtained with the magnetometer as printed with the author's first article.

Magnetometer surveys made over some of the other oil fields in the vicinity of Ponca City show in general the same results as is obtained in southern Kansas, that is the magnetometer in most of these cases shows that the production is usually found where the magnetic intensity gradient is considerable, and this condition is usually found on a line joining a magnetic high and an adjacent magnetic low.

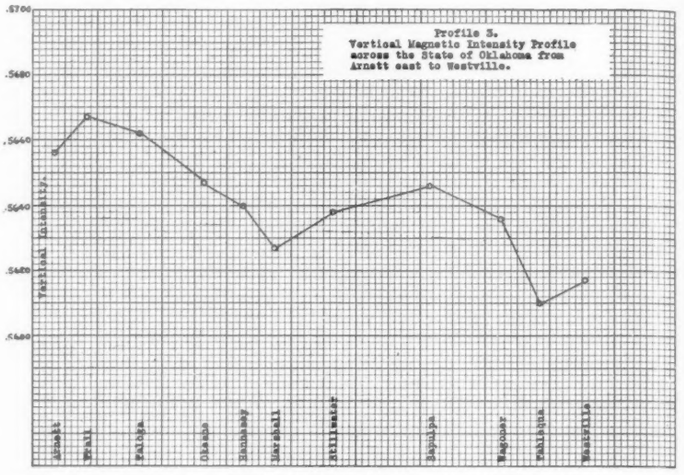
In some parts of eastern Oklahoma there does not appear to be any definite relation between the magnetic survey and the region of production. This may be due to the fact that in some instances the oil production comes from lenticular sands not directly associated with structure.

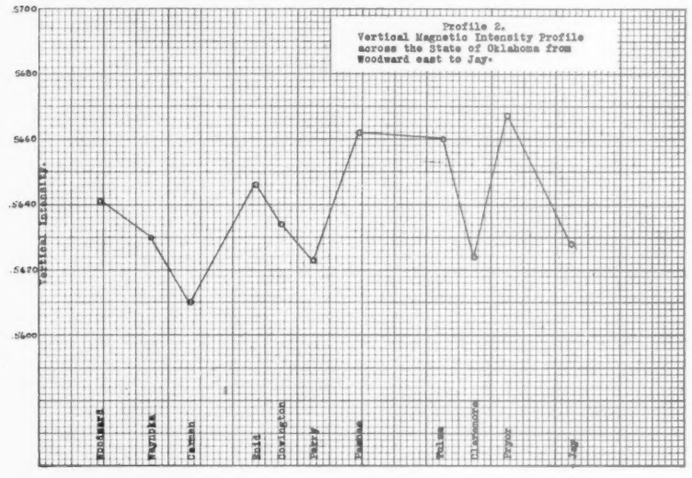
It seems also that in the north central part of Oklahoma and the southern part of Kansas the same general rule of interpretation holds, while in the southern part of the State the magnetometer depicts very closely the actual uplifts and depressions in the buried granite and other igneous rocks. Where this marked change in interpretation occurs is difficult to state.

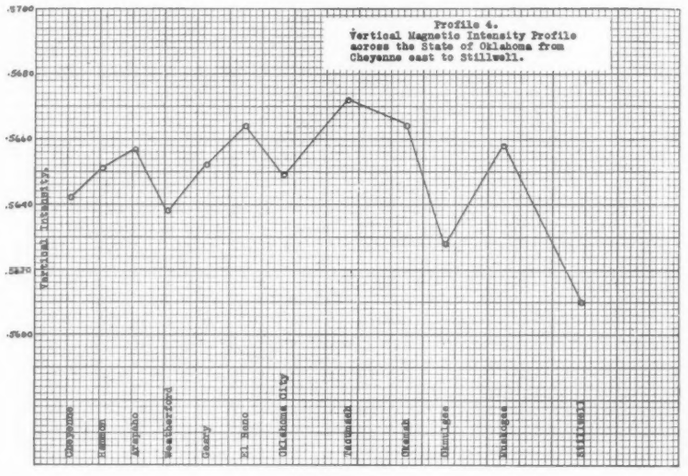
Areas That Are Interesting From a Magnetic Viewpoint and Worthy of Further Detailed Study

Plate 2 shows that the following areas not already discussed elsewhere are in the regions of unusual magnetic disturbances:

1. Watonga, a magnetic high in Blaine County.
2. Hunter, a magnetic high in Garfield and Grant Counties.







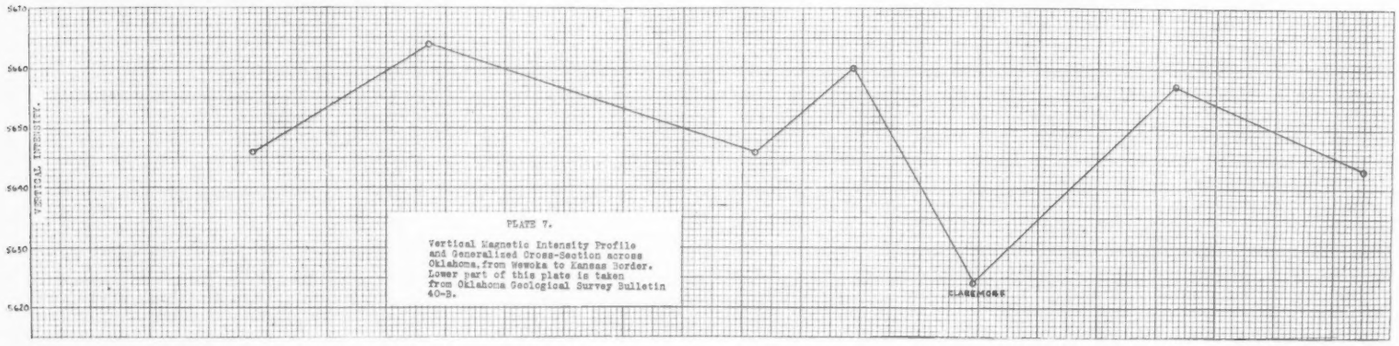
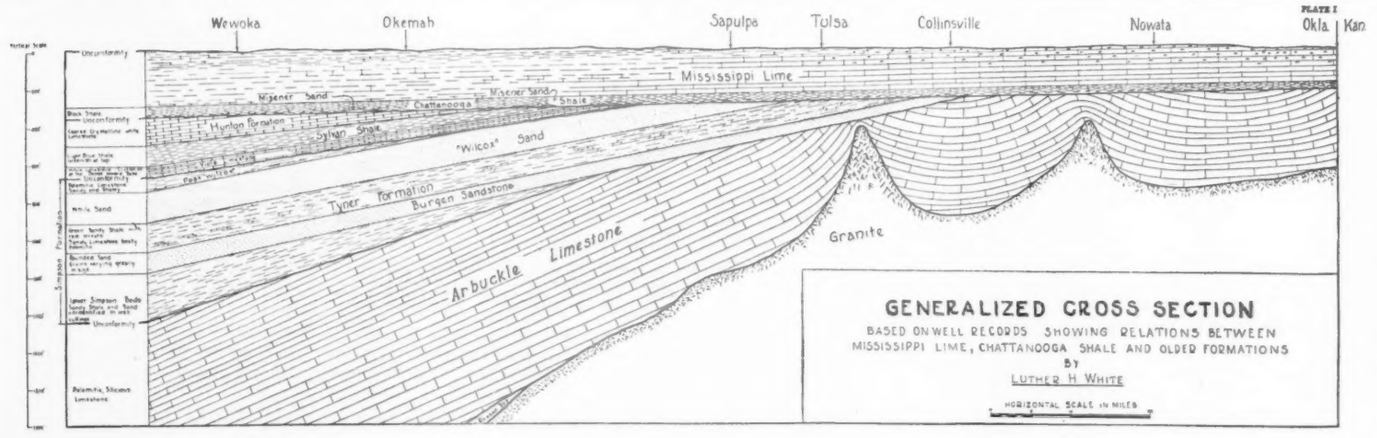


PLATE 7.

Vertical Magnetic Intensity Profile and Generalized Cross-Section across Oklahoma, from Wewoka to Kansas Border. Lower part of this plate is taken from Oklahoma Geological Survey Bulletin 40-B.



3. Alva, a magnetic high in Woods, County.

4. Carmen, a magnetic low in Alfalfa County.

Conclusions

It has been briefly pointed out in this article that in general it is possible to map the major geological features of the State by means of a relatively few well chosen magnetic stations.

The most noteworthy features are the marked influence of the Ozark Mountains, the Arbuckle Mountains and the Wichita Mountains. It is very apparent that the presence of these huge masses of material of comparatively high magnetic susceptibility have a very disturbing influence on the distribution of the earth's magnetic field in their vicinity.

It has been shown that other features like the Hunton arch and the Anadarko Basin can also be outlined by a magnetic survey. It is also worthy of mention that the magnetic survey of this State shows the existence of some sort of a magnetic disturbance in the form of a ridge extending from Medicine Lodge, Kans., to the Wichita Mountains; another similar disturbance extends south from the Ozark Mountains through Pryor and Muskogee; and a third such disturbance from Tulsa to Tishomingo.

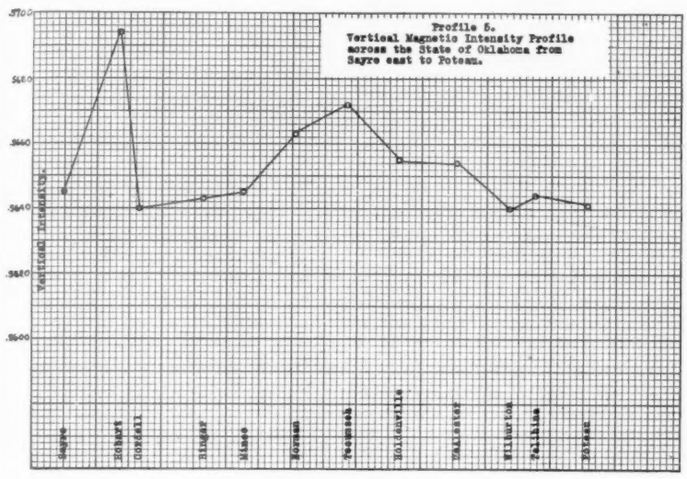
It is interesting to note that the extreme highs recorded at Hobart and Tishomingo are additional evidence of the applicability of the magnetometer for picking out the presence of granite.

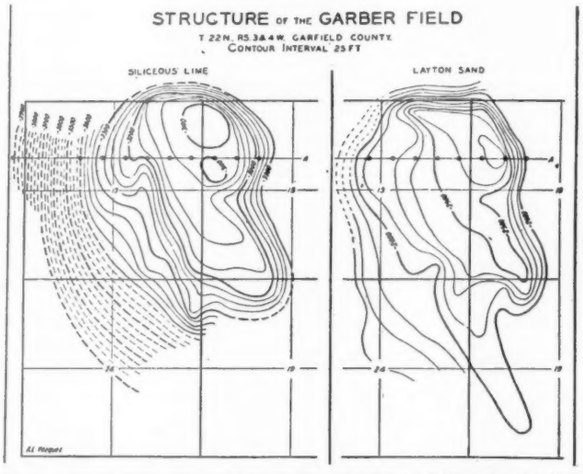
The fact that oil has been found near Lawton, Walters and Duncan, all in the vicinity of the magnetometer high at Walters, the finding of oil at Madill on the flanks of the Tishomingo high and the finding of oil at Gotebo on the flanks of the magnetometer high at Hobart would tend to give added importance to other magnetometer high.

On the other hand, the fact that some of the north central Oklahoma oil fields are on the flanks of magnetic lows tends to add confusion as to the proper place to choose on a magnetometer survey.

It would be safe to say that all regions of unusual magnetic disturbances in the State of Oklahoma would be worthy of further detailed study, and the most favorable of these from the geological standpoint should then be core-drilled.

In conclusion, attention is again called to those regions listed above, which are from a magnetic basis worthy of further study, both with the magnetometer and the core drill.





Above are shown structure maps of the Garber field taken from Oklahoma Geological Survey Bulletin 40-H.
Below is shown a magnetometer survey of the same field.
The base station was taken at the S.W.corner 18-T22N-R3W.

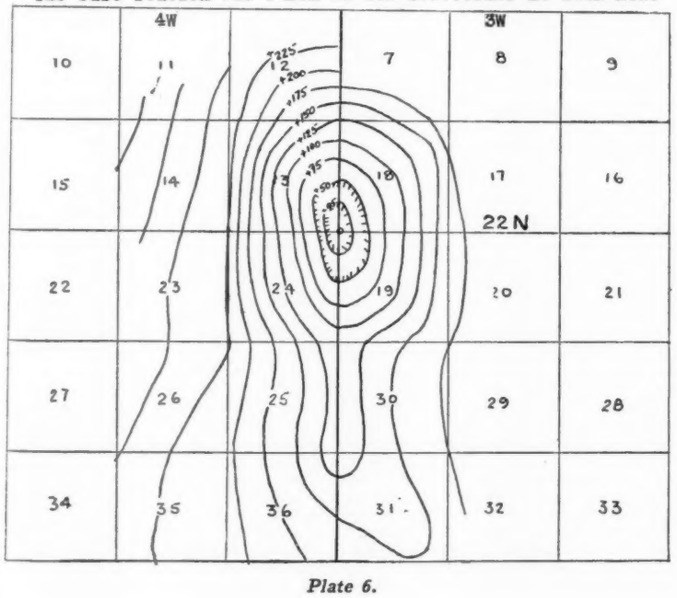
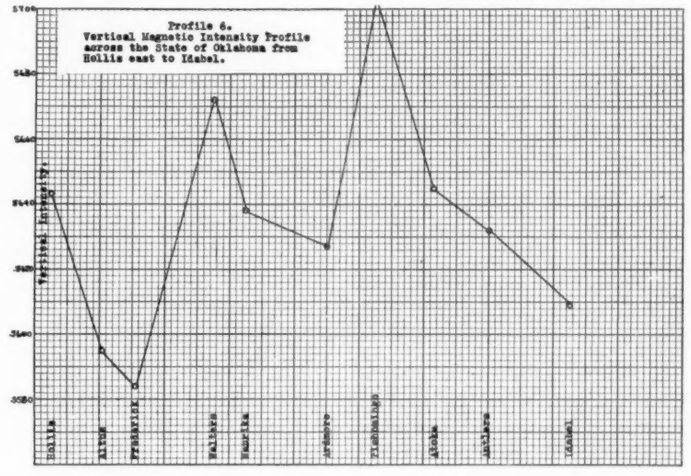
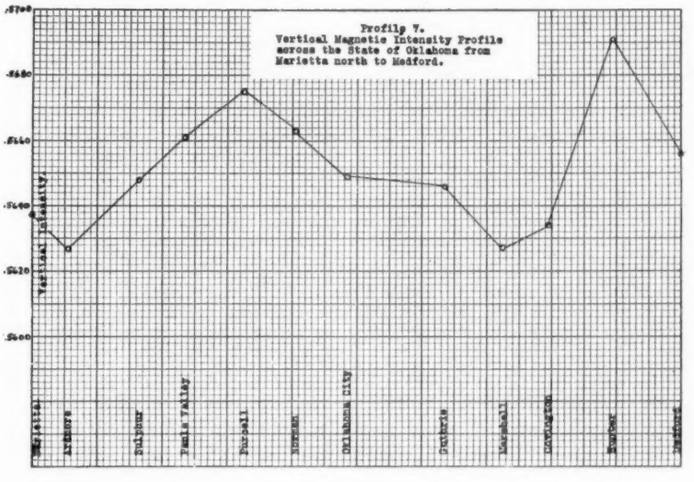


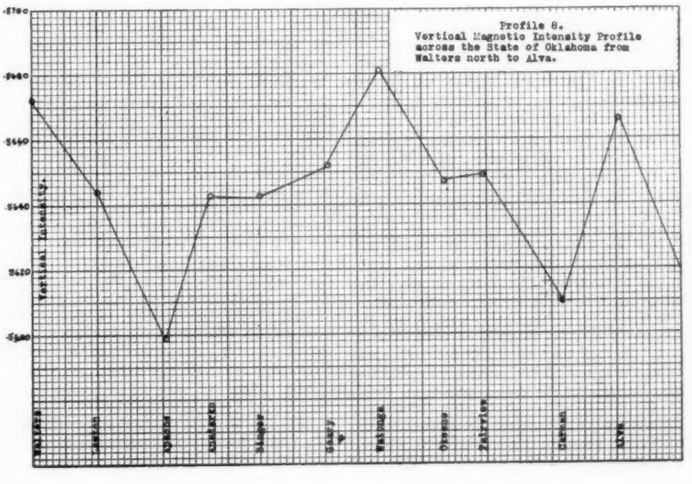
Plate 6.

SEARCHING FOR BROTHER

Mrs. H. B. George, Homochitto Place, Natchez, Miss., in a letter to The Oil and Gas Journal, states she is very anxious to locate her brother, Roger M. Graf, who is supposed to be employed in the oil fields of Oklahoma or Texas.







EARLY-DAY PROBLEMS IN OVERPRODUCTION

(Continued from Page 41)

might secure more than his share. The group that had combined together in the South Improvement Co. enjoyed certain advantages over the refineries along Oil Creek because of their larger size and more efficient equipment. They were able to get concessions from the railroads as individual concerns. Yet even they could not make much money in a market glutted with oil. The best chance of making a better return seemed to lie in forcing up the price of kerosene. To do this they organized the National Refiners Association. Several of the leading refiners on Oil Creek also entered the organization, giving it control over 80 per cent of the country's refining capacity.

The Producers Association

It does not appear that the refiners planned to depress the price of crude oil; their thoughts were directed to raising that of burning oil. However, the producers determined to put themselves in control of the situation. The Producers Association was reorganized. In August of 1872, its members pledged themselves to drill no new wells for six months. Except in Clarion County, one of the important developing areas, the shutdown was a success. The next move was a 30-day shutdown of all drilling. However, wells that had been started before the shutdown were larger than had been expected and even a 30-day shutdown of pumping did not decrease stocks very materially. As the months passed with no immediate improvement of the situation in sight, the support of the association became lukewarm. Many of the producers were actually in financial need. As might be expected, they soon agreed to the proposals of co-operation with the refiners' association made by agents of the latter in December and backed by an offer to purchase 200,000 bbls. of crude for cash. A crude oil price scale was established, the price to be determined by the market price of kerosene. The refiners agreed to do all in their power to raise the price of kerosene. This was to be accomplished mainly by restricting production and sales and selling only at specified prices to be determined by the association. The producers' organization in turn agreed to restrict production of crude.

Within a month after the contract had been signed, it became evident that the producers' organization could not hold production down. The refiners' association naturally refused to continue purchases under the agreement. Crude oil prices were cut in half. However, the producers were not the only sufferers. The National Refiners Association was a loosely organized body working under the leadership of J. D. Rockefeller. For a while its members made big profits, particularly as the association was able to maintain prices even after the crude market collapsed. However, a number of its members were quietly increasing their operations above their quotas and even cutting prices below those announced by the association. By June of 1873, its founders concluded that it would be useless to attempt to maintain prices any longer and disbanded the organization.

The Bradford District

The overproduction continued through most of 1874, ending only when the districts which caused it began to decline and because no new area was developed in that time to take their places. Low prices did what the agreements had failed to do—keep the drill idle. In the latter part of 1875 prices began to rise, withdrawals from storage being made. Immediately the drill became active again, this time in an entirely new area, the Bradford district. Oil had been discovered in this section in 1868 but operators had not been impressed with its possibilities until the summer of 1875. Production during that year was only 25,000 bbls. It reached 380,000 bbls. the following year, equaled 1,450,000 bbls. in 1877, and continued to increase each year until 1881 when 23,000,000 bbls. were produced.

The failure of the National Refiners Association had been ascribed by its leaders to the looseness of their organization. The period of bitter competition following its disbanding had brought on the failure of many concerns and the absorption of others by the leading refiner of the country, the Standard Oil Co. Aided by rising prices of crude this concern had been able to raise the price of export kerosene to 35 cents a gallon during the winter of 1876-77. The increasing strength of this concern was manifest also in the gathering and transportation of crude. One of the leading gathering organizations, the Empire Transportation Co., joined with the Pennsylvania Railroad in an attempt to build up a refining organization of its own. The attempt failed, partly because of the ability of the Standard to undersell its competitor at every turn, and partly because of a serious strike in which property of the Pennsylvania worth thousands of dollars was destroyed. By the fall of 1877 the Standard organization was the owner of practically all of the gathering lines in Pennsylvania.

Producers' Meeting

At about the same time the effects of the rapidly rising production of the Bradford district were being felt. Oil was again going into storage. A thousand more wells had been completed in 1877 and 1876. As prices fell, the producers gathered together to find a remedy. A congress of representatives from all of the producing districts met at Titusville in November of 1877. The meeting was unanimous in placing the blame upon the Standard purchasing, transporting and refining monopoly. New outlets to eastern markets not controlled by the Standard were demanded. A pipe line to Buffalo to connect with the western terminus of the Erie Canal was projected. A pipe line across the mountains to Baltimore was proposed. Requests for assistance were made to the legislature of Pennsylvania and even to the Federal Congress.

At the close of 1877 there were approximately 4,000,000 bbls. of tankage in the fields. Of this about 900,000 bbls. were empty. However, practically all of that was in the older Lower Field. Less than 200,000 bbls., including both empty and filled tanks, had been erected in the Bradford area. The Standard-controlled gathering system, the United Pipe Line Co., had extended its lines in the developing area as fast as the wells were completed. Both it and many of the larger producers were erecting tanks as rapidly as their resources would permit. A year later the tankage completed or partly constructed in the Bradford district reached 4,576,500 bbls.

The United Pipe Line Co. considered itself a common carrier. Under the custom in practice in 1877 that meant that it obligated itself to run the oil of any producer who might offer it. The pipe line company gave him certificates covering the oil run. These were retained or sold at one of the oil exchanges as the producer decided. The pipe line charged the producer or those to whom he sold a fixed amount for storage. The purchasing agents for the refineries bought the certificates in the open market and presented them to the pipe line when they desired delivery. In December, 1877, the pipe line company announced that it could only take oil for immediate shipment, its storage being full. This meant that the bulk of the oil had to be sold to the only purchaser who could guarantee immediate shipment, the Standard organization. It soon found that despite the heavy investments that some of the producers were making in tankage and the unwillingness of the stronger ones to lower prices, most of the producers were willing to sell their oil for almost any price. Prices paid during 1878 averaged less than half of those paid in the previous year.

Pipe Line Litigation

Threats against the Standard filled the air. The Petroleum Producers Union instituted suits against the railroads and the United Pipe Line Co., claiming that they were not performing their duties as common carriers. Government investigations of the Standard and its associates followed one another in rapid succession. In April, 1879, the grand jury of Clarion County, Pennsylvania, indicted the leading officials of the Standard on eight counts, one of these being that of combining to oppress and injure the producers.

The hearings of this and of other suits started at the same time were postponed again and again. In the meantime, the strength of the producers' organization slowly melted away as producer after producer was forced to sell his oil to pay his bills. Finally the leaders of the producers were forced to compromise with the Standard, all of the suits being dropped. The producers received a number of concessions in return. The chief of these was that the United Pipe Lines were to make no distinction on prices of different crudes or between its patrons, other than those resulting from differences in quality and agreed to receive, transport, store and deliver all oil offered to it up to a maximum of 65,000 bbls. If production exceeded 65,000 bbls., the Standard agreed not to purchase "immediate shipment" oil at a discount as long as the producers did not offer such oil at a discount to others. Rebates had been considered by the producers as the main cause of the success of the Standard. These the Standard refused to give up.

The pipe line to the coast, projected in 1877, was completed in 1879 and immediately became an active competitor for crude oil. This line, called the Tidewater Pipe Line, was able to transport crude far more cheaply than the railroads. Its advantages were short-lived, the Standard immediately constructing similar lines. However, the added and improved facilities for removing crude from the fields and the presence of competitive buyers did not improve the price of oil or stop the steady flow of oil into the storage tanks. The market was utterly unable to consume the oil that was being offered to it. By the fall of 1883 the Tidewater organization was forced to agree to subordinate itself to the Standard.

Probably the Tidewater would have been able to maintain its independence if the producers could have shut down their production and stopped the flow of cheap oil. The Bradford district, which was primarily responsible for the tremendous stocks that had been built up, reached a production of 69,000 bbls. daily in the fall of 1880. This figure represents actual runs, potential production being considerably greater. Production was maintained at practically the same level throughout the whole of 1881. Before its decline had a chance to bring on any reduction in stocks, the production of the closely related Allegany district in New York started to pour in. The latter proved to be very much smaller than the Bradford section. Its decline began in 1883. Late in that year withdrawals were made from stocks for the first time in seven years. Prices rose slightly and the drill started again.

Southward Fields

The center of activity had now shifted southward to Butler and Forest Counties. In 1886 new pools in Washington County added their quota to the total. None of these pools was comparable with those of the Bradford district in richness or extent. Production was slowly but surely being overtaken by consumption. Prices remained low because of the slowness of consumption in beginning to make any real inroads upon stocks. These were still owned largely by the producers. Carrying charges were heavy and the absence of any immediate prospects of their sale at a high price remote. Several more or less local shut-down movements had been attempted with indifferent success. Again the producers attempted to end their troubles by legislation. A bill calling for the regulation of rates and other charges made by the pipe line companies for gathering and storage of oil was introduced in the Pennsylvania legislature early in 1887. It was undoubtedly unconstitutional. Yet it received the united support of the oil producers, who were aroused to feverish excitement by its defeat. A secret organization, the Producers Protective Association, was immediately organized.

Bradford, Pa. and Alleghany, N. Y. Districts Production Records, 1868-1889*

Year	Bradford bbls.	Alleghany bbls.
1868	1,000	.....
1869	1,000	.....
1870	1,000	.....
1871	1,000	.....
1872	2,000	.....
1873	2,000	.....
1874	3,000	.....
1875	25,000	.....
1876	380,000	.....
1877	1,450,000	.....
1878	6,500,000	.....
1879	14,200,000	.....
1880	22,300,000	5,000
1881	23,000,000	600,000
1882	18,000,000	6,450,000
1883	13,400,000	4,700,000
1884	12,000,000	3,850,000
1885	10,600,000	2,600,000
1886	7,043,617	1,799,305
1887	7,563,452	1,662,661
1888	†6,284,375	
1889	†7,158,363	

*After Pennsylvania Geological Survey and United States Geological Survey.
†Not separated.

Pennsylvania-New York Field Statistical Record, 1871-1892*

Year	Pipe line runs in bbls.	Shipments in bbls.	Average price
1871	5,205,234	5,664,791	$4.340
1872	6,293,194	5,899,947	3.640
1873	9,893,786	9,499,775	1.830
1874	10,926,945	8,821,500	1.170
1875	8,787,514	8,942,938	1.350
1876	8,986,906	10,164,452	2.563
1877	13,135,475	12,832,573	2.420
1878	15,163,462	13,676,000	1.190
1879	19,686,176	15,886,470	.859
1880	26,027,631	16,677,492	.945
1881	27,376,509	20,284,235	.915
1882	30,053,500	21,900,314	.772
1883	23,128,389	21,979,369	1.092
1884	23,772,209	23,657,597	.834
1885	20,776,041	23,713,326	.856
1886	25,798,000	26,653,852	.704
1887	21,478,883	27,279,028	.712
1888	16,488,668	25,138,931	.876
1889	21,487,435	29,638,898	.941
1890	29,130,910	30,116,403	.868
1891	33,009,236	28,485,861	.670
1892	28,422,377	29,972,861	.556

*After United States Geological Survey.

The organization called for an immediate shut-down. Some of the more able producers refused to do this unless the co-operation of the Standard could be secured. A meeting between producers and the Standard was arranged. One of the most comprehensive curtailment programs ever proposed was adopted. The producers agreed to decrease production by 17,500 bbls. daily. No new drilling was to be done for one year. Wells were to be shut down part of the time. The producers further agreed to do all in their power to decrease production by 30,000 bbls. daily. The Standard agreed to sell the producers 5,000,000 bbls. of crude oil at 62 cents a barrel so that the producers could share in the profits expected through rising prices. The two contracting groups even arranged for the care of workmen during the period of the shutdown. Stocks began to decline almost immediately, production in 1888 being approximately 6,000,000 bbls. less than that of 1887. Prices rose somewhat but the effects were by no means as great as the producers had expected. Many became discouraged, the shutdown was called a failure, and the agreement was allowed to lapse at the end of the year.

Conditions Change

There is no reason to believe that the agreement was not lived up to in every regard, both by the producers and the Standard. Neither of them seem to have realized that conditions had changed and that the oil industry was now bigger than Pennsylvania. The producers turned again to the development of a controlled transportation, refining and marketing organization. Despite keen competition this effort succeeded, the organization developing into the Pure Oil Co. Naturally the Standard did all it could to keep down this new competitor. However, competition was appearing in other quarters that appeared to be far more serious. Russian oil was invading the Standard's European markets in increasing amounts and was offered at low prices. The Standard, regardless of the evidence of fresh supplies of oil becoming available in Ohio and West Virginia, seemed to have come to the point of worrying about a supply of cheap oil for the future. Thus while it extended its pipe lines into

the new areas of Ohio, Indiana, and West Virginia, it began to purchase producing properties in the older areas of Pennsylvania and New York. Many producers, worn out by the long period of low prices and fearing the advent of oil from these new areas, readily agreed to sell to the Standard for cash or stock. By the close of 1890 the Standard made itself the largest producer in Pennsylvania. As the producers' company gained strength and the Standard became interested directly in the profits of production, the interests of refiners and producers tended to become identical. Provided they did not make competition with Russian oil too difficult, increased prices for crude were desired by all. Yet, it was not until 1895 that any real increase in price occurred, and not until 1899 that Pennsylvania crude was able to permanently maintain an average price of more than $1 per barrel.

Lima and West Virginia

In part, the failure to secure better prices was due to the discovery of sensational wells in Allegheny County, Pennsylvania, in 1891 and, in part, to general business depression. However, the main reason for the continuance of low prices was undoubtedly the rapidity of the development of the Lima-Indiana Field and the extension of the Pennsylvania Field into West Virginia. A small production had been secured from the latter for many years. Real development began in 1889, production increasing steadily each year until 1900, when 16,195,675 bbls. were produced. As the rate of increase was slow, the effect upon the market was not serious. If its production had been the only new oil discovered to supplement the yield of Pennsylvania, which by 1892 had started on its permanent decline, the fear of overproduction would have soon disappeared. However, with the advent of Lima-Indiana in 1885 came the development of a center whose flush production was far greater than the immediate needs of the market.

Almost immediately, producers found that the wells in this new field were far more sensational in their behavior than those of Pennsylvania. Thousand-bbl. wells were not uncommon. Again the rush to drill, so indicative of the development of American pools, began. The oil was shipped to the refiners, who processed it in the same manner as they did the Pennsylvania oils. Almost over night the complaints of their customers began to come in. The oil was "sour" and unfit for use as burning oil. As the possibilities of the use of fuel oil were still largely unknown, it could not be sold. The Standard proceeded with the construction of pipe line facilities but prices fell in disorder, averaging only 15 cents a barrel through 1888 and 1889. Plans for the development of the use of the oil as boiler fuel in Chicago and other industrial centers of the Middle West were under way when the Standard announced the discovery of a process for removing the sulphur and creating a sweet usable oil. The cost of refining was greater than that of refining the oil secured from Pennsylvania and the yields lower. However, the oil was available in large quantities, production in 1890 reaching 15,000,000 bbls. The potential yield was greater than the capacity of the pipe lines, oil was going into storage, and prices had only risen to 30 cents a barrel. The combination continued to depress prices both in the Lima district and in Pennsylvania until the peak production for this new area was reached in 1896.

Intrinsic Value

With the opening of the present century, the producing areas of Pennsylvania and New York and in fact all of the sections east of the Mississippi began to lose their importance as market leaders. With the exception of the boom period of 1906 to 1910 in eastern Illinois, their flush production was no longer a factor in the price structure of this country. With the turn of the century came the permanent improvement in prices that operators had sought so long, coming as a natural consequence of the application of the economist's favorite principle—the law of supply and demand. But millions of barrels of oil had been sold at ruinous prices; producers had cursed the refiners, the railroads, the pipe line companies, and even each other. The cream of the oil reserves of Pennsylvania and New York had been skimmed off and sold at prices averaging less than $1 a barrel. Much oil had been lost in fires and in evaporation and leakage from tanks while it stood in storage.

There would be no reason for repeating this history of the succession of failures of the efforts to dam up the flood of oil and secure to the producers a price for their product comparable with its intrinsic value if conditions of today were basically different from those of the kerosene era. However, the basic conditions are not different but identical. The absence of a link in the chain extending from the newly discovered area to the markets of the world is just as potent today as it was in the past. The Panhandle and West Texas have felt the restrictions placed upon them by lack of transportation facilities and refining equipment capable of converting their crude to products meeting the markets requirements just as Oil Creek and Lima-Indiana did in 1861 and 1888 respectively. The low prices paid during the development of new areas are not usually indicative of the value of their product but indicate the absence of a necessary link in the chain connecting the well to the ultimate consumer. At Oil Creek one of the missing links was the absence of refineries; in the others the lack of knowledge and the absence of equipment to remove sulphur were depressing influences. All felt the inadequacy of transportation facilities.

Effect of New Areas

The purchaser of crude entering a new section has a right to expect some compensation for the chance that he takes in building storage and pipe lines to a section that may prove of little importance. However, it was certainly not necessary for producers to drill and produce oil at Oil Creek and in the Lima district in such amounts that prices fell to 10 and 15 cents a barrel respectively to encourage the building of transportation and refining facilities. Yet the situation in those areas has been repeated again and again in the history of the American oil industry. That operators have not yet discovered an effective means of preventing its reoccurrence is adequately proven by the sale of millions of barrels of West Texas oil at 60 cents a barrel in the past few months. The records of successful shutdowns are few compared with the failures of producers to keep their production within the limits of available facilities.

As long as a new district lacks the facilities to make its oil a factor in the world's markets, it receives little attention. Thus operators near Oil City failed to realize the importance of the discoveries of 1869 and 1870 in the Lower Field until that section was swamping them with oil. Similarly the Lower Field could not conceive of the importance of the discoveries at Bradford. The majority of Pennsylvania operators failed to understand that Lima was capable of becoming a market factor within a few years after its first well had been completed. Failure to appreciate the importance of activities a few miles away has cost producers millions of dollars. As late as 1927 many Oklahoma producers, while doing their utmost to gain control over excessive production at Seminole, refused to recognize the growing importance of West Texas and Venezuela, depreciating the character of their crude, the estimates of their potential yields, and the adequacy of their transportation facilities. Producers in every field have failed to realize that the successful refiner or crude purchaser is the one who secures his crude from sections in which competition is the least developed. Thus refiners and purchasers are bound to extend their activities into new areas as a matter of ordinary business policy. The greater the activity of competitors, the more rapid must be the extension of operations into these new sections.

Prices and Production

If the new area is small it has little direct influence upon the price structure. If large or unusually prolific its condition of overproduction and price weakness is contributed to the market as a whole. If the larger market is strong the new oil may be absorbed without any apparent difficulty. However, the strength of the market is a difficult thing to calculate. The industry fears the failure to discover new wells almost as much as it does their discovery and has carried large amounts of oil in storage since its very beginning to secure itself from the danger of sudden decreases in production. From its early beginnings, the industry has felt that withdrawals from storage must be accompanied by increased prices and the resumption of drilling activity.

Thus the influence of the new development has invariably been felt before the effects of the old one had passed and especially before the storage oil that had accumulated during its peak condition had been decreased to a reasonable amount. Thus when the oil of Bradford came upon the markets of Pennsylvania it found a surplus of oil already there because of the excessive production in the Lower Field a short time before. The yield from Bradford merely served to break an already weakened market. Perhaps with the development of fields in every part of the world, the fear of immediate unexpected declines may decrease sufficiently to permit stocks to be reduced to a point where they will not constitute a burden that becomes excessive at every period of overproduction.

Refiners' Responsibility

Producers have long felt that refiners made money during periods of overproduction. It is certain that they have been able to maintain their price structure much better than the producers have. In some instances they have been able to maintain prices for several months after the prices of crude oils collapsed. The explanation of this lies in their smaller numbers and the fact that their organizations are generally stronger than those of the producer. However, refiners have felt the effects of overproduction of crude sooner or later. This is particularly true of those who owned no marketing systems. In the last analysis the refiner and his associates, the purchaser and the transporter, have not been as responsible for periods of overproduction as the producer has been. They have, especially where the bulk of the purchasing was done by one group, forced crude prices down to extremely low levels in attempting to secure extra profits to themselves. However, the existence of conditions making such action possible can be traced in every instance to the existence of production far in excess of the needs of the world.

The efforts to prevent overproduction in Pennsylvania and New York included shutdown agreements, combinations of producers and refiners, the entrance of producers into transporting and marketing, the invasion of production by refiners, and appeals to courts, state legislatures, and the Federal Government. They failed to produce the desired result because they did not remove the basic cause, excessive drilling and production. The record of the past century is that of great efforts abandoned when the goal was half attained. Will it be the record of today and tomorrow?

CROOKED HOLE PROBLEM IS BEING STUDIED

(Continued from Page 38)

major companies and to geologists in prospecting, whatever the development in the future may be, it is as yet comparatively unimportant in drilling oil wells.

Rotary Drilling

The ordinary oil field rotary came as an evolution from the diamond drill. Underground conditions were found in the Louisiana country which led to the drillers' putting a fishtail bit on the end of a rotated drill pipe and applying mud fluid to wall back loose, cavey formation. The rotary came into use particularly in the Gulf Coast country. After a hard struggle against the opposition of cable tool drilling it obtained a footing in California and has now, on its merits, attained a most important place in development there.

What happened in the far West is being repeated in the Mid-Continent Field. To the south of us is a 100 per cent rotary country, while until a short time ago we were using entirely cable tools. Statistics showed for Oklahoma alone in 1925, 4,136 cable tool holes and 402 rotary drilled. Subsequent statistics are not available but it is certain that they will show a very great increase in the use of rotary in this state because of special fields such as Seminole, where practically all the work, except drilling in, is rotary. Improved rock bits and coring features have rendered it increasingly more attractive for economical wildcatting and this applies, outside of Oklahoma, to the Mid-Continent with a few exceptional localities.

Now, it is suggested that the two rotating methods, diamond core drilling and ordinary rotary, primarily depend on steady prsesure on the bits for their cutting and therefore there is a comparatively greater tendency toward deflection with either of these methods than with the gravity percussion cable tool method. This is the general opinion. Mr. Hudson says, in personal correspondence, "We have assumed that cable drilled holes do not deflect from vertical to the same extent as rotary drilled holes."

Later, I shall try to show that cable tool holes may deviate to some extent, but as already stated, we are not using 100 per cent cable tools, so that all tendencies of all methods should be considered.

Diamond Drill Deflections

First is shown here a classic: a "horrible example" of diamond drilled deflection. It is from the paper of Hugh F. Marriott before the Institution of Mining and Metallurgical Engineers in 1905, describing results in South Africa to test a reef that dipped 26 degrees southeast. The drilled depth measured 4,802 feet, vertical angles measured from 4.3 degrees to 60 degrees. The actual vertical depth was 3,910 feet and the horizontal drift was 2,185 feet. Please note that the deflection was against the dip of the country rock. The survey was made by an instrument invented by Marriott and introduced into the hole to various points. It contained a galvanometer and marine compass in paraffin, which was heated to melting by electricity. After the needle settled the paraffin was cooled, the instrument, with the locked needle extracted and clinometer and compass readings gave the vertical and azimuth angles.

Similar surveys and similar results, also in South Africa, were shown by Hoffman, who in 1912, surveyed by an improvement on the Oehmann instrument. The instrument worked by compass, plumb bob and photographic exposures timed by a clock. In this case the total drilled was 6,625 feet. At a measured depth of 6,200 feet the actual vertical depth was only 4,813 feet and the drift of the hole carried the bottom to 3,632 feet off the vertical. Angles at various depths varied from 0 to 58 degrees. Hoffman introduced the wedging of holes to straighten them at certain points. This matter is discussed by Hall and Row in the Transactions of the American Institute of Mining Engineers for 1920.

These are extreme cases of the past. They were fully discussed in those ancient days 15 to 20 years ago, but it is not suggested that they would be possible under modern refinements.

An authority on diamond core drilling comments on present methods as follows: "It is common practice to survey core drilled holes for vertical deflections. Hydrofluoric acid and glass tubes are used for this purpose. It is not often done on less than 1,500-foot depths, but angle holes and deep holes are usually surveyed."

He refers to the objection that the Maas compass and other apparatus formerly used in surveying direction of deflection

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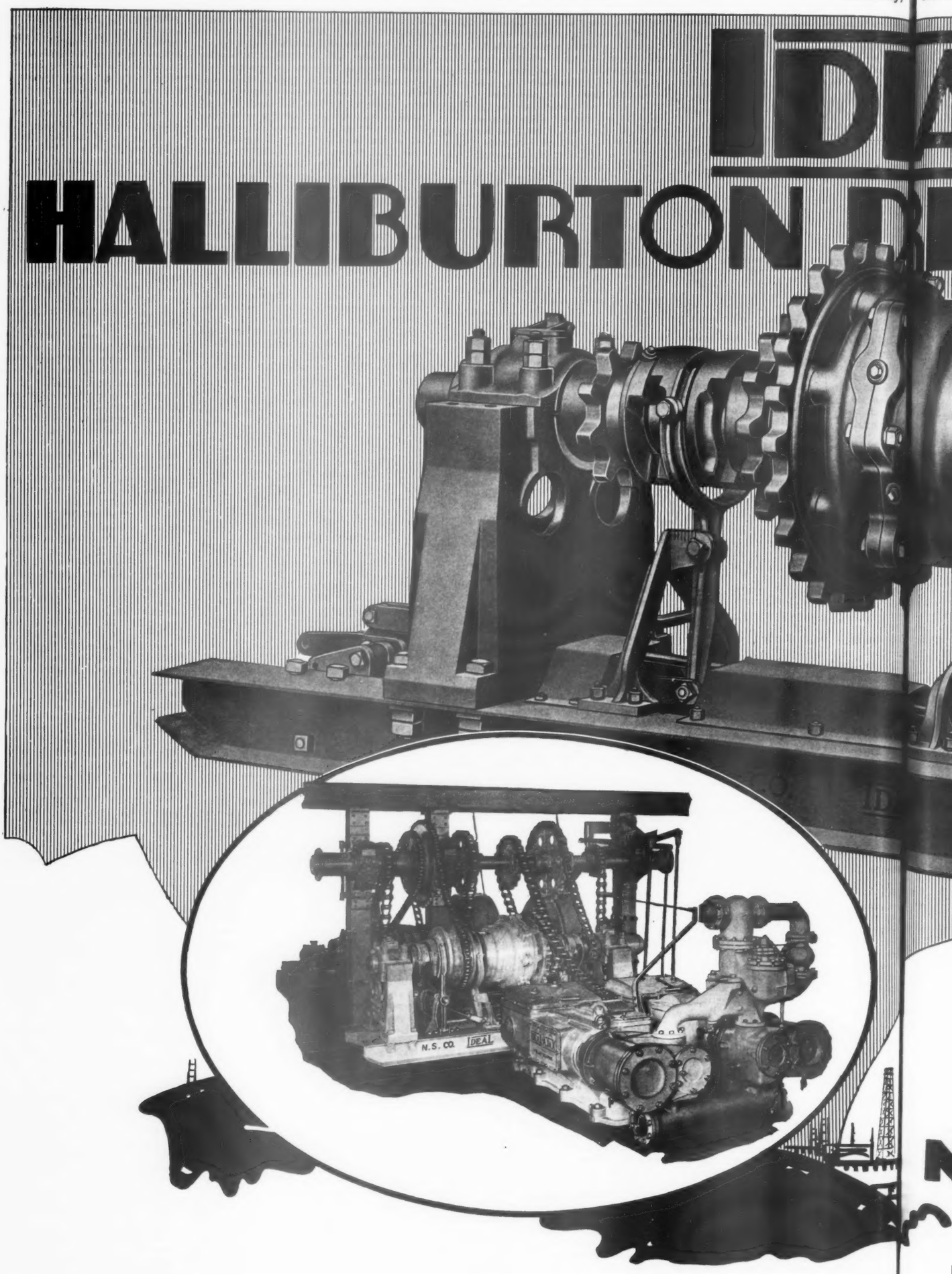

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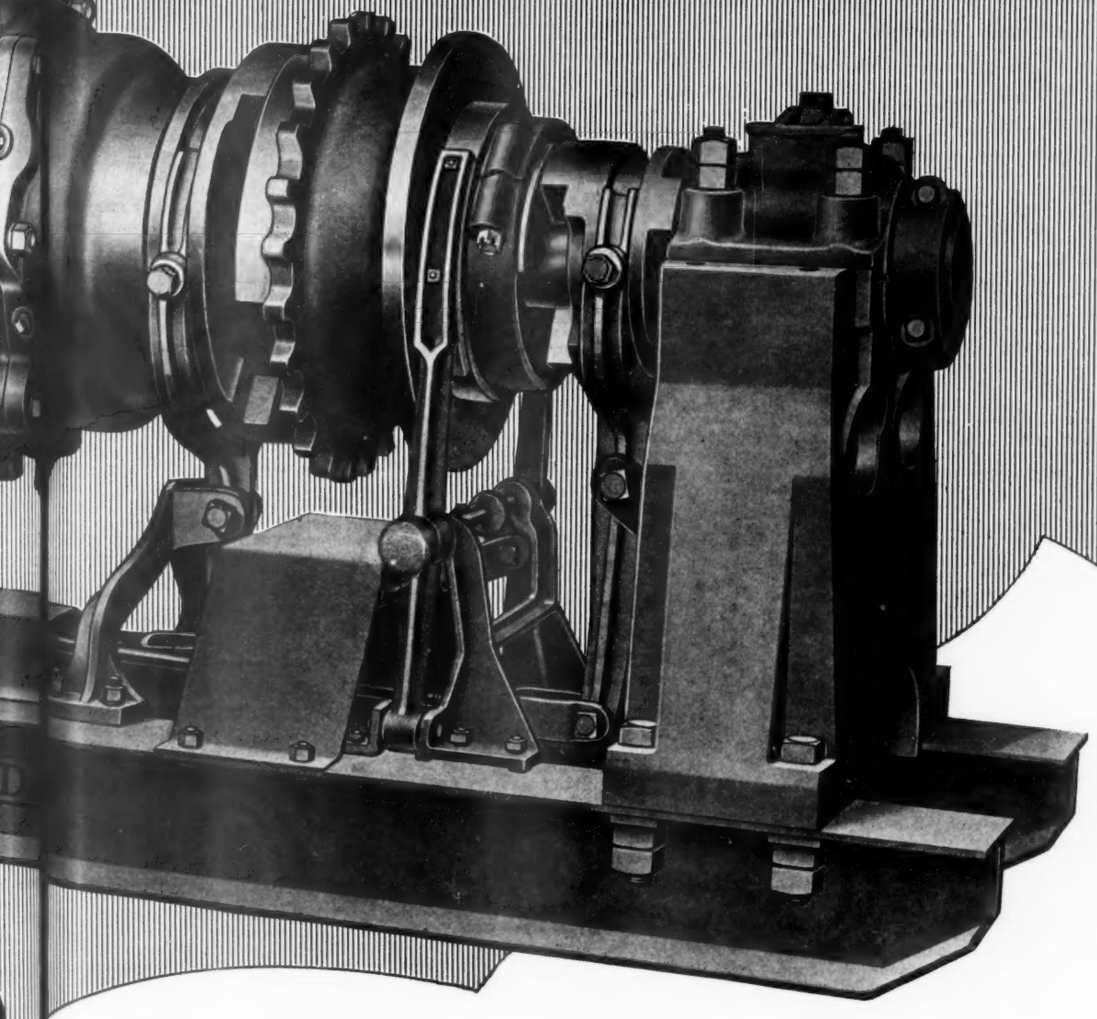

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were uncertain because of local magnetic influences. This objection would not hold, I believe, for an instrument invented by Dr. Oskar Martienssen of Kiel, Germany, which has been used in connection with the freezing system of shaft work in mining. The principal features of the Martienssen instrument are a gyroscopic compass, two clinometers at right angles to each other, and a continuous strip record controlled by a telegraph key at the surface. This apparatus has not been used in oil work, nor perhaps has the improved Anschultz instrument.

J. S. Mitchell of this country, has patented an instrument and has used it in Mexico and Venezuela in large hole drilling. These appliances are mentioned not only because of their usefulness in connection with diamond core drilling but also because they may possibly be useful in surveying holes drilled by other methods.

Direction of Deflection

It is well established that when a rotated bit meets a hard, dipping stratum the resistance is on the up-side. The core barrel or attached drill pipe bends under weight and bows, so that the cutting surface is inclined toward a right angle to the resistant layer. The same thing should theoretically occur in cable tool work although not to the same extent.

It has been stated that there is no need to worry about deflection in horizontal formations which is the usual condition in oil country. However, it seems that in many of our fields we do have steeply inclined beds, or what would produce the same physical effect—faults, joint planes or even cross bedding. In Hudson and Talliaferro's paper, first referred to, evidence is that variations in the hardness of strata often cause deviation and deflection. Their conclusion is that all deflections caused by lithologic changes are in a clockwise direction (the direction of pipe rotation), while most of those caused by mechanical difficulties, sidetracking of pipe, etc., are in anticlockwise direction. Mr. Hudson writes me that some of his co-workers in the field do not agree with the first conclusion, but that he has obtained some evidence from other surveys which checks his ideas upon drift caused by sidetracking junk.

Alexander Anderson lately states that there is no parallelism between various California well deviations as surveyed. Accepting this as fact, therefore, my own conclusion is that irregularities in well courses are due to local conditions, obstacles, either natural or artificial, that are encountered—each well being a separate entity with its individual differences from others.

References

The paper by Hudson and Talliaferro is only one of several contributions on the general subject of underground surveying in California. Anderson had a paper, read by title, at the San Francisco meeting of the A.A.P.G. November 19, 1925. He also published an identical article in three oil periodicals regarding the world's deepest hole, Chanslor Canfield Midway, Olinda 96, which, as reported in September, was 8,046 feet deep. I show the plan of its course herewith to depth of 6,948 feet. Frank M. Smith, geologist of the Pan American Petroleum Co. also has an article in the Engineering & Mining Journal, February 6, 1926, entitled "Surveying Oil Wells with Anderson Apparatus."

The Anderson Survey

It is believed that several dozen wells have been surveyed by Alexander Anderson.[1] The inventor has not made public the details of the method or the apparatus. However, it is understood that the machine is 3½ inches in diameter and 7 feet long. The mechanism is housed in a welded casing, so that it can be used in mud and water. It is generally run on tubing or drill pipe, although in the case of one Pan American well it was run on a sand line. Measurements of vertical angles and directions are made for every stand of pipe.

A photographic record is obtained probably showing the attitude of pendulums. Orientation is measured mechanically the direction of drift being referred to a north-south line on the derrick floor so that at each exposure the directional deflection is known at the surface. The time of survey for one well to 6,522 feet is given as 6 hours and 45 minutes. Costs of the survey are not known.

Core Dips Inexact

One of the most important points brought out by studies of the Oak Ridge-McFarland well No. 1 described in the bulletin of the A.A.P.G. is that cores taken at depths of from 4,800 feet to 6,066 feet showed various dips from 0 to 25 degrees and do not indicate the true dip. "An oriented core taken at 5,295 feet shows an apparent dip of 9 degrees, but a true attitude approximately horizontal." The authors of the pape in describing this well state in their conclusion that "In as much as the maximum inclination of the hole from vertical is frequently comparable in amount to the dips measured in the cores, it would seem that no reliance can be placed on the apparent dips in cores without knowledge of the inclination of the hole from vertical at the point where the cores were taken."

Pan American Example

This same point is taken up by Mr. Smith in his case No. 3 of the Pan American. Cores showed apparent inclination of about 20 degrees with the axis of the core. He says: "In dealing with apparent dips measured with the core, must be applied principles of descriptive geometry. We have the intersection of a cylinder inclined at several degrees from the vertical, with an inclined plane making a known angle of 70 degrees with the axis of the cylinder. Revolve the cylinder in such a way that its axis will generate a cone with the apex in the plane intersection. It will be seen that a serious error of direction is introduced if the false assumption is made that the axis is vertical and the dip or angle of maximum declivity is measured accordingly in the plane of the intersection. The error will be reflected in recording the strike and the final calculated bearing may be off as much as 45 degrees."

It is a mathematical problem with an oriented core requiring the knowledge of the inclination of the hole from vertical both in direction and amount.

Core Dips in Oklahoma

In this connection the writer recalls a well in Southern Oklahoma drilled to about 4,100 feet. After passing 2,700 feet the dips shown by cores averaged 45 degrees. If the hole were drilled vertically the core dips signified structure becoming more intense with depth and the technologist's conclusions as to longevity of the producing wells might be correct. If the hole were deflected, as is probable, the geologist might be kidding himself on both structure intensity and appraisal of productive life, for the well itself and for land tributary thereto.

C.C.M.O. Well Survey

Taking up the Anderson description of the C.C.M.O. well from 0 to 3,575 feet, the hole drifted up the slope. The average vertical deflection angle is 5 degrees 5 minutes, and at the first oil zone the drift was 316 feet. The actual vertical depth from the surface was only 20 feet less than the measured depth (or 3,555 feet) but the geologist who had assumed the hole to be vertical would have been off 143 feet because the known dip of 35 degrees carries it to 3,718 feet vertically below the derrick floor. It seems that Mr. Anderson's remarks are, locally at least, well founded. I quote him as follows: "The data from which all underground contour maps of drilled areas in that region have been constructed, were assuming the wells to be accurately vertical. The sharp and frequent changes in direction exhibited by some of the plotted contours—amounting occasionally to an almost saw-tooth pattern—do not seem to truthfully represent the probable contours of the sedimentary rocks—had the well log data been corrected from underground survey, underground contour forms would be smoother."

Something of the same idea has been suggested by Lew Suverkrop in discussing "The Value of Precise Cross Sections in Redrilling Oil Wells."

The change of course of No. 96 Olinda toward the northeast, is attributed to the passing out of the Fernando into the Puente formation. Before attaining its maximum drift of 517 feet north 70 degrees east of the derrick, a smaller 3-inch bit was used and probably for this reason the hole changed its azimuth and vertical direction greatly, drifting to a point north 39 degrees east 348 feet distant from the derrick floor. This point is 2 degrees 55 minutes (5.1 feet per 100) off the vertical, and the actual vertical depth (for the 6,948 feet measured) is 6,815 feet. At the measured depth of 6,948 feet, high temperature put the machine batteries out of commission, although its owner intends to further insulate and continue this survey later.

Pan American Surveys

Reference has been made to the description by F. M. Smith of other surveys. There were three cases. The first was run to 3,142 feet. The range of vertical angle deflection was 0 to 10 degrees; the horizontal drift was 142 feet. The purpose was to determine position of oil zone on an edge location, for future operating guidance.

Case No. 2—drilled depth 2,217 feet. Average deflection 30 degrees 11 minutes. Horizontal drift 234 feet. The survey was made of a second hole after an original 4,400 feet had been lost on account of rushed, hasty drilling. It was to help decide upon further procedure and the decision was made to start a new well rather than try to find and enter the wanderingly crooked old hole in an effort to go 5,000 feet.

Case No. 3 was a geological proposition on a wildcat location. The hole was thoroughly cored and an oriented core corrected to the inclination of the hole. This satisfactorily sustained Geologist Smith's previous ideas. The measured depth in this case was 3,460 feet; vertical angle ranged from 0 to 10 degrees, with an average of 3 degrees 45 minutes. The actual vertical depth was 3,445 feet, only 15 feet off, but the horizontal drift was 276 feet. Other points in this case have already been presented.

Cable Tool Cases

All the cases so far mentioned refer to rotary methods. Except for one reference by Lew Suverkrop to two cable wells in California surveyed as a check and which proved to be truly vertical, there does not seem to have been much done or at least published along this line. Two cable holes in Pennsylvania were measured by the chief geologist of an important company. The method employed was hydrofluoric acid etching of a glass bottle suspended at various points, the solution being about 40 per cent of acid in water. The angle between the high and low side of the etching was measured and calculations of the angle of deflection within an error of 2 to 4 per cent were made.

Many deep tests have been made in the region but only two are given. The purpose of these was to determine points for correction of crooked hole troubles. The direction of drift of hole was not considered of importance and no thorough underground survey was made. The first well tested in 1921 was drilled to a depth of 6,889 feet and showed a range of vertical angle deflection from 1 degree to 28 degrees 47 minutes. The next was drilled to a depth of 7,756 feet, and was until 1926, the deepest well in the world. The vertical angle of deflection ranged from 0 degrees to 27 degrees 42 minutes.

Because the measurements are not given from the surface downward with many stations, but begin at considerable depth, it cannot be stated certainly, but it appears that both remained vertical for some depth and that the deepest well was vertical at 3,295 feet. However, with depth the deflection from vertical increased to figures about equal if not exceeding those of the modern rotary records.

It is explained that the regional subsurface strata are steep dipping with alternating hard and soft beds that prevented the bit from hitting squarely. In other words, it seems that just as in rotary drilling, these holes become crooked, though not to the same extent, from the same local physical and mechanical laws.

Conclusion

In summing up all the information available, it appears that deep well holes, no matter how they are drilled are practically never vertical. The causes for this are numerous. Hurry, carelessness and crowding of work to make drilling time records which involves the personal factor of operator and driller are all important factors. In addition, there are local underground conditions which differ with each well drilled, and for which no general rule can be formulated to cover all cases. Cable drilling is more nearly vertical, although at great depths it loses its advantage. And in this connection the point should be brought out that while a few years ago 2,800 feet was the limit of production in the Mid-Continent, at the present time the average limit is more nearly 4,000 feet. And further still, the deep drilling tendency is shown by a well started at Spindletop, Texas, with the necessary equipment and intention to go 10,000 feet.

For purposes of correlation there cannot be enough error to disturb conclusions over extensive areas. However, in subsurface mapping of small pools or small tracts of land, it should be recognized that points assumed to be vertical below the derrick floor, may be many feet away in any direction. And that so long as the exact positions of all points used in mapping a subsurface bed are unknown, the detailed subsurface contouring will always have to be changed for every well that is drilled in. The question is asked: From a practical standpoint, should not the percentage of error in detailed mapping be further reduced by actual underground well surveys, very much as is done in mine mapping where an error reduction to a fraction of an inch is generally striven for?

There are many viewpoints other than those of the geologist, all of which have been mentioned by the authors quoted. The technologist is interested in correlation and water shutoffs; the proper spacing of wells; estimates of acreage drainage and reserves of oil; as well as in the operation and the behavior of individual wells. Verticality or the lack of it affects conclusions formerly arrived at from general premises rather than specific detailed surveys in each case.

REVIEW OF PETROLEUM DEVELOPMENTS ABROAD

(Continued from Page 39)

gallons from Georgia and Russia, from which the imports in 1926 were nil.

The quantity of fuel oil imported into India during 1926 was nearly 6,000,000 gallons more than that received during the previous year, the total imports reaching 100,000,000 gallons. Over three-quarters of the supply was derived from Persia, and the greater part of the rest from Borneo.

The export of paraffin wax increased to the extent of some 7,000 tons during 1927.

Russian Exports Grow

Russian oil exports in August, 1928, amounted to 240,000 tons, an increase of 33 per cent compared with last year and an increase of 4.3 per cent compared with July last year. Exports of kerosene amounted to 44,000 metric tons, gasoline 67,000 tons, lubricating oils 33,000 tons, fuel and gas oil 74,000 tons, and other products 22,000 tons. The destination of the exports was as follows: Great Britain 34,000 tons, Germany 24,000 tons, Central Europe 16,000 tons, France 39,000 tons, Egypt and India 23,000 tons, Italy 31,000 tons, Spain 27,000 tons, Turkey 12,000 tons, the Baltic provinces 15,000 tons and other countries 13,500 tons. In addition to this the bunker trade amounted to 5,500 tons.

The export of all oil products for the fiscal year amounted to 2,683,000 tons against 2,006,000 tons in the fiscal year 1926-27, excluding Persia. This represents an increase of 680,000 tons or 34 per cent.

Particular increases are shown in the

[1] A large number of wells have been surveyed by Mr. Anderson since this paper was written.

exports of kerosene. The increase in figures amounts to 653,000 tons or 51 per cent. Gasoline exported amounted to 748,000 tons against 580,000 tons in the previous year. Exports of lubricating oils have been increased to 229,000 tons against 189,000 tons. The exports of gas oil amounted to 201,000 tons against 123,000 tons, while the exports of fuel oil reached 674,000 tons against 513,000 in the previous fiscal year, an increase of 32 per cent.

According to Russian sources, exports to Great Britain have not increased compared with the previous year, but sales have shown a decided increase and were made from tremendous stocks accumulated in the previous year. Russian authorities claim an increase of 70 per cent in sales compared with the previous year.

Russian production programs for the current fiscal year provide for an output of 12,600,000 tons and the output of finished products is to be increased, compared with the past year by 27 per cent.

Reduced Costs

Among the recent achievements of the Naphtha Trust are listed the following:

1. Cost for the exploitation of one well per month has been reduced by one-half.

2. The cost of a drilling unit has been reduced 46 per cent.

3. The cost of light products has been reduced considerably—gasoline by 30 per cent, lubricants by 15 per cent and kerosene by 7.5 per cent.

Such considerable reductions in the cost of fundamental productive processes, in an industry of such dimensions as Baku, are of tremendous importance for popularizing ideas of rationalization in the country. Plans for the immediate future include the construction of a large number of cracking units which it is expected will increase the Russian production of gasoline to approximately four times its present output.

Production in the Baku region for the month of August was 652,200 tons. The average daily output compared with the previous month has fallen one-half per cent. Drilling for the month was the same as the previous month, 22,100 meters. The refineries took 539,000 tons of crude oil, 19 per cent less than in the previous month.

In the Grosny district the August output was 352,100 tons, an increase of 12.9 per cent compared with the previous month. Gushers accounted for 76.4 per cent of this output.

Argentina May Cancel Grants

The project providing for expropriation by the National Executive of all petroleum properties passed two readings in the House at one session after short debate in which the minority voiced opposition. The measure was rushed through by a radical majority with practically no discussion on their part. No study was made of sums likely to be required for expropriation and no appropriation was provided to pay for expropriated properties. This same project also authorizes the executive to cancel with indemnity the exploration concessions on which work has been installed within certain prescribed periods, and to cancel exploration concessions without indemnity on exploration concessions on which material has not been installed within certain periods.

The wording of the authorization might be construed as to deprive owners of acquired exploration rights without reimbursing the sums invested by them, and without taking into consideration prospective values proven by exploration that has already been carried on. The project now goes to the Senate where, if passed, it will become law and all private enterprise in the oil fields of Argentina will be eliminated. The chief concerns affected are: Royal Dutch, Anglo-Persian, Astra Cia de Petroleo, Cia. Challaco, Standard Oil Co., Cia. Solana, and British Railways.

The holdings of these companies total approximately 250,000 acres, practically all of which is developed property. It is estimated that the total investment represented by these holdings is $84,000,000.

RUSSIAN PRODUCTION GAINED 12.8 PER CENT

WASHINGTON, D. C., Nov. 10.—Production of oil in the Soviet Union for the fiscal year ending September 30, 1928, is estimated at 86,000,000 bbls., an increase of 12.8 per cent over the output for the preceding year and 1.9 per cent over the Government program, according to a statement issued by the Amtorg Trading Corp., New York.

Refining operations in Russia by the principal trusts amounted to 8,760,000 metric tons, an increase of 25 per cent over last year and 54 per cent over the 1913 total. The exports of oil products during the year just ended exceeded considerably all past records.

For the first 11 months of the year exports totaled 2,452,000 metric tons, an increase of 37 per cent over 1926-27, and were 160 per cent in excess of exports during the last prewar year.

Capital investments in the oil industry for the past fiscal year, according to reports just issued, totaled $111,000,000, bringing the aggregate of investments for new construction and capital repairs in the industry for the past five years to $375,000,000.

ANGLO-PERSIAN POLICY ON OIL CURTAILMENT

Speaking of the position of the Anglo-Persian Oil Co. in regard to the world situation, the Petroleum Times of London says:

The field of Musjid-i-Sulaiman, from which all the Persian oil is at present obtained, is one of the largest known oil domes in the world. From this dome comes the present annual production of some 5,000,000 tons, all through one pipe line. That pipe line could carry 6,000,000 tons per annum comfortably, now that it has been improved and furnished with pressure loops. A second pipe line was and is easily within the compass of Anglo-Persian finance, should it be desired. The production from the dome would occupy both lines to capacity for an indefinite number of years to come. In other words, Anglo-Persian has only to say the word and build the second line, and the production would be 10,000,000 or 12,000,000 tons annually instead of 5,000,000.

Another large dome has also been proved to the eastward of the one just referred to. The company has, in addition, proved a field in Irak, near the Persian border, at Naft Khaneh—a field of large wells and high pressures. This is the Anglo-Persian's own Irak Field, as distinct from its interest in the Turkish Petroleum Co., which is also operating in Irak.

With regard to the last-named company, it may be remarked that, after the government royalty, the Anglo-Persian's proportion of the oil is nearly one-third. As there is a general consensus that the Turkish Petroleum's field is of the same order of magnitude as the Persian dome now producing, the Anglo-Persian's wealth in oil may well be regarded as relatively enormous.

Here arises a matter to which we must refer. How comes it that with such vast oil resources the Anglo-Persian is content to market only some 5,000,000 tons per annum? The answer is that for years before "conservation" or "curtailment" was practiced on any scale in America the Anglo-Persian had adopted it as a settled policy for its own undertaking, without making any fuss and without claiming any particular merit for so doing. It is our declared policy not to butt in unnecessarily on the present negotiations for a world-wide regulation of oil production; but to explain the Anglo-Persian position we must indirectly refer to them. The United States is claiming (or did claim until recently) that it is the only country in the world where curtailment on a large scale is in force; and on that ground it demands that in other countries, where possible, the same policy should be initiated. But there is not a single other company in the world which for many years past has virtually shut in at least 100,000 bbls. of oil daily. Five millions tons per annum is about 100,000 bbls. per day; to market double that quantity only needs about 150 additional miles of pipe line, for the oil is there. But the Anglo-Persian has refrained from such a course. Therefore, it seems only right that special consideration should be given to that company, and to its point of view, in the discussions now proceeding with regard to world regulations.

MAGNOLIA P. L. STATEMENT

The Magnolia Petroleum Co.'s pipe line department makes the following report for Oklahoma and Kansas in October: Runs 2,340,075 bbls., daily average 75,486 bbls.; shipments 2,005,843 bbls., daily average 64,705 bbls.; stocks 9,136,351 bbls. The company's total runs in Texas were 1,700,464.40 bbls.; Louisiana 159,451.19 bbls. and Arkansas 173,907.46 bbls.

PANHANDLE GEOLOGISTS

The Panhandle Geological Society elected Lawrence Hagy of Hagy, Harrington & Marsh, president for the current six weeks' term, succeeding John Ferguson of the Amerada corporation. Other officers elected were: Larry Oles of the Prairie Oil & Gas Co., first vice president; W. L. Day of the Delmar Oil Co., second vice president, and Harry Rogatz of the Phillips Petroleum Co., secretary-treasurer.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 48)

CONCHO COUNTY

Exploration Co.'s No. 2 Hartgrove, 906 ft. S and 985 ft. E of NW cor. Johann Scheuch Sur. No. 240 ..... Rig.

Kimberlin et al's No. 1 Maloy, Sec. 319, Ludwig Winkle Sur. ..... Shut down 1,460 ft.

Posey's No. 1 Elvidge, C NW Sec. 39, H.&T.C.R.R. Sur. ..... Shut down 300 ft.

CRANE COUNTY

C. C. Duffy et al's No. 3 Cowden Bros., 200 ft. N and W of SE cor. SW Sec. 18, Blk. X, C.C.S.D.&R.G.N.G. Sur. ..... Top salt 625 ft.; drlg. 2,210 ft.

Gulf Production Co.'s No. 56 J. T. McElroy, 2,102 ft. S and 48 ft. W of NE cor. of their lease, Section 201, Blk. F, C.C.S.D.&R.G.N.G.R.R. Co. Sur. ..... Cem. 6-in. 2,694 ft.

Gulf Production Co.'s No. 5 W. N. Waddell, 330 ft. N, and280 ft. W of SE cor. NE Sec. 11, Blk. 25 ..... Top salt 1,215 ft.; top lime 3,100 ft.; 1,000,000 ft. gas 3,115-34 ft.; set 6-in. casing 3,162 ft.; drlg. 3,297 ft.; 2 gals. oil hourly.

Simms-Atlantic's No. 2 University-B, 990 ft. N and E of SW cor. Sec. 34, Blk. 30, University Land ..... Drlg. 2,576 ft.

Texas & Pacific C. & O. Co.'s No. 2 University, 2,310 ft. S and 1,650 ft. W line Sec. 34, Blk. 30, University Land ..... Location.

Tidal Oil Co.'s No. 1 University-D, 990 ft. from W and 1,650 ft. from S lines, Sec. 34, Blk. 30, University Land ..... Top salt 1,080 ft.; drlg. 2,345 ft.

CROCKETT COUNTY

Barbara Oil Co.'s No. 1 Cox, 237 ft. S and 1,190 ft. E of NW cor. R. B. Dickenson Sur. ..... Shut down 1,000 ft.; show gas.

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I.&G.N. Sur. ..... Cleaning out 2,110 ft.

T. W. Callahan et al's No. 1 J. S. Todd, C SW Sec. 13, Blk. "YZ," E.L.&R.R. Sur. ..... Top salt 905 ft.; set 8-in. casing 1,155 ft.; 2,000,000 ft. gas 1,205 ft.; shut down 2,170 ft.

Compton's Co.'s No. 1 University Land, 1,875 ft. N and 916 ft. E of SW cor. Sec. 15, Blk. 50, University Land ..... Shut down 2,062 ft.; 300 ft. oil in hole at total depth and 1,200 ft. water 1,965-85 ft.; fishing 2,220 ft.

W. W. Donnelly & Young's No. 1 Massey, Sec. 29, Blk. U-V ..... Shut down 380 ft.

W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.R. Sur. ..... Spudded and shut down.

W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur. ..... 7,000,000 ft. gas at 1,662 ft.; cleaning out 1,680 ft. (cor.).

Moncrief, Zoch et al's No. 1 J. H. Tippett, 330 ft. from C NE line Sec. 45, Blk. 31, H.&T.C.R.R., but in Sec. 1, Blk. JH ..... Location.

Texas-Canadian Oil Co.'s No. 1 University, 330 ft. from N and 305 ft. from E lines, Sec. 4, Blk. 33 ..... Show gas 1,250 ft.; shut down 1,275 ft.

J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, O.&G.N.R.R., but in Vacancy Strip ..... Shut down 320 ft.

CULBERSON COUNTY

Deep Rock Oil Co.'s No. 2 Seay, 200 ft. N and 250 ft. E of CSL Sec. 20, Blk. 59, T.&P. Sur. ..... Rigging up standard tools.

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 .... Drlg. 355 ft., sand and shale.

Hickey & Stiver's No. 1, C. O. Finley, 660 ft. N and 1,980 ft. W, Sec. 20, Blk. 82 ..... Hole full water; small oil show 1,381 ft.; pipe set 1,418 ft.; total depth 1,568 ft., sandy lime; trying to shut off water.

Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; shut down for casing 1,767 ft.

DAWSON COUNTY

Magnolia Petroleum Co.'s No. 1 W. A. Jetter, C Sec. 1, Blk. 34, Twp. 4-N ..... Top salt 1,650 ft.; drlg. 1,985 ft., salt; set 10-in. casing 1,815 ft.

ECTOR COUNTY

Pennsylvania Drlg. Co.'s No. 1 W. E. Connell, C NE Sec. 7, Blk. B-16 ..... Location.

EL PASO COUNTY

Sillix et al's No. 1 W. D. Malone, Sec. 46, James M. Day Sur. ..... Set 12½-in. casing 1,010 ft.; shut down 1,010 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. ..... Shut down 1,328 ft.

Cranfill & Reynolds' No. 1 J. L. Sharp, C NE of SW Sec. 207, B.B.B.&C. Sur. ..... Drlg. 1,190 ft.

Cranfill & Reynolds' No. 1 E. G. Young, C of NW of SW of Sec. 199, B.B.B.&C. Sur. ..... Drlg. 3,115 ft.

Hucony Gas Co.'s No. 1 D. F. Maberry, 1,078 ft. S and 188 ft. W of NE cor. Elijah Bell Survey No. 327 ..... Drlg. 2,600 ft.

Midwest Exploration Co.'s No. 2 Decker, 320 ft. S and E of NW cor. of S 60 ac. of W 160 ac. of N 320 ac. of Sec. 8, Blk. R, W. E. Richardson Sur. ..... Location.

Midwest Exploration Co.'s No. 1 Higginbotham, Sec. 8, Blk. R ..... Location.

Roeser & Pendleton's No. 1-B Decker, 455 ft. N and 330 ft. E of SW line of N 100 ac. of W 160 ac. of N 320 ac. of Sec. 8, Blk. R, W. E. Richardson Sur. ..... Underreaming 2,860 ft.

Sun et al's No. 2 Young, Sec. 208, Blk. 1, C NE SE, B.B.B.&C. Sur. ..... Drlg. 3,122 ft.

GAINES COUNTY

Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 S and 330 ft. W of NE cor. of Sec. 110, Blk. E, D.&W.R.R. ..... Rigging rotary.

GLASSCOCK COUNTY

Josey & Finchbaugh's No. 1 S. R. Cox, 1,320 ft. W or NE cor. and located on the N line of Sec. 29, Blk. 33, Twp. 4s, T.P.R.R. Sur. ..... Hole full salt water 780 ft.; hole full salt water 1,801-15 ft.; set 6-in. casing 2,607 ft.; top lime 2,602 ft.; shut down 3,272 ft.; hole full sulphur water at 3,232 ft.

HOWARD COUNTY

Andrews & McCamey's No. 1 Neal, 200 ft. S and W of NE cor. Sec. 17, Blk. 32, Twp. 1s. — Drlg. 2,785 ft.

Bristow & Merrick's No. 2 D. Roberts, 990 ft. E and 330 ft. N of SW Sec. 137, Blk. 29, W.&N.W.R.R. Sur. — Drlg. 1,950 ft.

Cosden & Co.'s No. 2 Dora Roberts-D, 1,650 ft. S and 990 ft. W of NE cor. Sec. 157, Blk. 29, W.&N.W. — Location.

W. W. Donnelly et al's No. 1 Clay, SW cor. W half NE Sec. 127, Blk. 29, W.&N.W. — 700 ft. oil in hole from 1,919-27 ft.; 8 bbls. water 2,635-50 ft.; sulphur water 3,040 ft.; total depth 3,135 ft.; cleaning out 1,990 ft. after shot.

Dunnigan & Hyer's No. 3 Clay, 785 ft. N and 250 ft. E of SW cor. Sec. 126, Blk. 29 — Rigging up.

F. H. E. Oil Co.'s No 5 Dora Roberts-B, 1,650 ft. N, 2,310 ft. W of SE cor. Sec. 137, Blk. 29, W.&N.W. — Drlg. 2,918 ft.

F. H. E. Oil Co. et al's No. 7-B Dora Roberts, 330 ft. S and E of NW of Sec. 137, Blk. 29 — Drlg. 1,590 ft.

F. H. E. Oil Co.'s No. 8-B Dora Roberts, 2,310 ft. S and E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. — Location.

F. H. E. Oil Co.'s No. 9-B Dora Roberts, 1,040 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. — Location.

F. H. E. Oil Co.'s No. 10-B Dora Roberts, 330 ft. S and 310 ft. E of NW cor. Sec. 137, Blk. 29 — Location.

F. H. E. Oil Co.'s No. 11-B, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. — Location.

F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S and 1,650 ft. E of NW cor. Sec. 136, Blk. 29. — Drlg. 1,590 ft.

Green Oil Co.'s No. 4 H. R. Clay, 785 ft. N and 250 ft.t W of SE cor. of Sec. 127, Blk. 29 — Location.

Green Oil Co. et al's No. 1 J. W. Furrh, C SW cor. Sec. 11, Blk. 31 — Drlg. 830 ft.

L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, T-1-S, T.&P. Sur. — Hole full salt water 1,475-1,505 ft.; top lime 1,825 ft.; drlg. 2,705 ft.; oil show 2,670 ft.

Henshaw Oil Corp.'s No. 1 Dora Roberts-C, 1,423 ft. S and 2,723 ft. E of NW cor. Sec. 6, Blk. 32, T-2-S, T.P. Sur. — Drlg. 1,625 ft.

Henshaw Oil Corp.'s No. 2-A Settles, 1,884 ft. E and 330 ft. S of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. — Drlg. 240 ft.

Louisiana Oil & Ref. Corp.'s No. 1 Kloh & Rumsey, 2,970 ft. E and 2,310 ft. S of NW cor. Sec. 3, Blk. 32, T-2S, T.&P.R.R. Sur. — Shut down 2,495 ft.; sulphur water.

Louisiana O. & R. Corp.'s No. 1 W. R. Settles, 2,093 ft. E and 1,432 ft. S of NW cor. Sec. 6, Blk. 32, Twp. 1s, T.&P. Sur. — Drlg. 1,873 ft.

Louisiana Oil Corp.'s No. 2 Settles, 2,306 ft. E and 330 ft. S NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. — Location.

Magnolia Pet. Co.'s No. 11 Kelly-Chalk, 1,660 ft. S and 330 ft. E of NW cor. Sec. 124, Blk. 29, W.&N.W.R.R. Sur. — Set 10-in. casing 680 ft.; drlg. 1,515 ft.

Magnolia Pet. Co.'s No. 12 Dora Roberts, 1,650 ft. N and 330 ft. S of SW cor. Sec. 136, Blk. 29, W.& N. W. Sur. — Location.

Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. — Rigging up standard tools, 2,927 ft.

Magnolia Pet. Co.'s No. 14 Dora Roberts, 990 ft. N and 2,310 ft. W Sec. 157, Blk. 29 — Drlg. 2,685 ft.

Magnolia Pet. Co.'s No. 15 Dora Roberts, 2,310 ft. S and W Sec. 157, Blk. 29, W.&N.W. — Setting 6-in. casing 3,000 ft.

Magnolia Pet. Co.'s No. 16-D Roberts, 990 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. — Drlg. 1,575 ft.

Marland Prod. Co.'s No. 11-A Clay, 250 ftt. S and 2,890 ft. W of NE cor. Sec. 139, Blk. 29, W.&N.W.R.R. Sur. — Location.

Marland Prod. Co.'s No. 1 Dora Roberts, SW cor. Sec. 128, Blk. 29, W.&N.W. — Fishing 1,575 ft.

Marland-Texon's No. 5-A Settles, 2,310 ft. N and 330 ft. E of Sec. 135, Blk. 29 — Top pay 2,495 ft.; top lime 2,025 ft.; fishing 2,944 ft.

Marland & Group One Co.'s No. 6-A Settles, 2,266.5 ft. S and 2,513.2 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. — Drlg. 340 ft.

Phillips Pet. Co.'s No. 1 J. Thomas, 330 ft. N and W of SE cor. of Sec. 13, Blk. 33, T-1-N, T.P. Sur. — Drlg. 615 ft.

Sun Oil Co.'s No. 3 W. R. Settles, 330 ft. W, 2,310 ft. N of SE cor. Sec. 135, Blk. 29 — Set 16-in. casing 250 ft.; oil show 1,800 ft.; oil show 2,345 ft.; 1 bailer per hour 2,345-55 ft.; total depth 2,991 ft.; swabbed 100 bbls., 50 per cent water.

Sun Oil Co.'s No. 4 Settles, 330 ft. W and 1,650 ft. N of SE cor. Sec. 135, Blk. 29, W.&N.W. Sur. — Rigging up.

Taylor-Link Oil Co.'s No. 1 Kloh-Rumsey, 330 ft. N and 2,310 ft. E of SW cor. Sec. 3, Blk. 32 T.&P.R.R. Sur. — Top lime 2,131 ft.; swabbing hole full of oil 2,357 ft.; shot 400 quarts 2,260-2,357 ft.; cleaning out; pumped 300 bbls. 12 hrs.

Texon O. & L. Co.'s No. 1 Quinn, 330 ft. N and W of SE cor. Sec. 11, Blk. 34, Twp. 1s — Drlg. 1,340 ft.

Ward Oil Co.'s No. 3 D. Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29 — Rig up.

Witherspoon & Glasscock's No. 1 Settles, 330 ft. S and 2,970 ft. W, Sec. 6, Blk. 32, T.&P. Sur. — Spudded with machine and shut down.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart and Roseborough, C SE Sec. 5, School Blk. 21 — Shut down 260 ft.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E. — Total depth 150 ft.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. — Straightreaming 2,700 ft.; total depth 2,740 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18 — Hole full water 2,945 ft.; underreaming 8¼-in. casing at 2,840 ft; trying to get water shut off; shut down 3,140 ft.

IRION COUNTY

Central Oil Corp.'s No. 1 Harlan Horney, 1,170 ft. N and 450 ft. W of SW cor. Sec. 3, Blk. 3, H.&T.C. Sur. but in Strip No. 1,026 — Shut down 350 ft.

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, Lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur. — Location

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,029, Blk. 24, H.&T.C. Sur. — Location.

Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 3, C SE Sec. 3,009, Blk. 24, H.&T.C. — Location.

Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S. 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land — Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.

Mertzon Oil Co.'s No. 1 Roach, Sec. 24, 1,380 varas W, 485 varas S of NE cor. Mat Roach Sur. — Oil show 1,622-30 ft.; shot 30 qts. 1,522-30 ft.; hole full water; drlg. 2,185 ft.

Signal Oil Co.'s No. 1 Suggs, Sec. 9, Blk. H. T.C.R.R. Sur. — Top salt 805 ft.; hole full sulphur water 1,865 ft.; shut down 2,025 ft.

Sun Oil Co.'s No. 1 Williams, 1,190 ft. E and 230 ft. N of SW cor. Sec. 39, Blk. 21, H.&T.C.R.R. Sur. — Drlg. 2,310 ft.

F. E. Webb et al's No. 1 J. M. Nutt — Shut down 2,026 ft.

Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur. — Shut down 3,375 ft.; 2,700 ft. fluid in hole; to run 6-in. casing for test.

C. J. Wrightsman's No. 1 Sawyer, 1,320 ft. from N and W lines Sec. 3,032, Blk. 24, H.&T.C. — Location.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line 600 ft. W line Sec. 345, Blk. 4, H.&T.C. — Show gas 3,271 ft., black lime; shut down for pipe.

JONES COUNTY

Atkinson & Sandifer's No. 1 Hudspeth, 300 ft. S of CNL Sec. 22, Miles Sur. — Pulling 8¼-in. casing 2,300 ft.

E. P. Campbell et al's No. 1 Berry, 660 ft. S and E of NW cor. of N 80 ac. of E 160 ac. of N half Sec. 15, Blk. 2, S.P.R.R. Sur. — Drlg. 2,570 ft.

Cranfill & Reynolds and others' No. 1 Bickley, 510 ft. N and 150 ft. E of SW cor. Sec. 50, Blk. 18, T.&P. Sur. — Drlg. 1,935 ft.

Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 319 ft. E of SW cor. S half of NW Sec. 50, Blk. 18, T.&P. Sur. — Rig.

Cosden & Herbert Oil Co.'s No. 5 Bickley, 330 ft. S and 319 ft. W of NE cor. of S half of NW Sec. 50, Blk. 18, T.&P. Sur. — Underreaming 8¼-in. casing 2,275 ft.

E. L. Evans' No. 1 S. W. King, Manuel Bueno Sur. No. 197 — Shut down 2,015 ft.

Eastland Oil Co. and White Eagle Oil Co.'s No. 1 Derrick, 200 ft. S and W of NW cor. Sec. 53, Blk. 18, T.&P.R.R. Sur. — Drlg. 2,820 ft.

McMan Oil & Gas Co.'s No. 1 Bickley, 2,320 ft. W and 1,650 ft. S of NE of Sec. 50, Blk. 18, T.&P. Sur. — Drlg. 2,410 ft.

McNeeley et al's, No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Sub-Division 20, A-164, DeWitt Co. School Land — Rig.

Mook Texas Co.'s No. 1 Creight, 330 ft. S and E of NW

Phillips Pet. Co.'s No. 1 R. E. Windham, 330 ft. N and W of SE Sec. 17, Blk. 19. — Drlg. 2,420 ft.

Richardson Bros.' No. 1 Mrs. M. A. Martin, C E 80 acres, N half Sec. 13, J. Weihl Sur. No. A-468. — Shut down 722 ft.

Roeser & Pendleton's No. 1 Grayson-B, 330 ft. N and 288 ft. W of SE cor. of J. H. Grayson Sur. 3-A-1,771. — 1,000 ft. oil 2,555-60 ft.; swabbed 60 bbls. and lost swab.

Sinclair Oil Co.'s No. 1 Buckley, 330 ft. S and 319 ft. E of NW N half NE Sec. 50, Blk. 18, T.&P. Sur. — Swabbed 20 bbls. per hr. 2,472-77 ft.

Sinclair O. & G. Co.'s No. 2 Buckley, 975 ft. S, 320 ft. E of NW cor. N half NE cor. Sec. 50, Blk. 18, T.&P. R.R. Sur. — Drlg. 1,850 ft.

Snowden & McSweeney's No. 2 Bickley, 330 ft. S and 959 ft. W of NE cor. of N half of NW Sec. 50, Blk. 18, T.&P. Sur. — Underreaming 8¼-in. 2,270 ft.

W. G. Stough et al's No. 1 J. P. Willis, J. C. Patterson Sur. No. 2 — Shut down 1,740 ft.

The Texas Company's No. 1 Camp, 330 ft. N and 290 ft. E of SW cor. 154.5-acre tract in Sec. 13, Blk. 19, T.&P.R.R. Sur. — Drlg. 1,430 ft.

The Texas Company's No. 2 Carter, 812 ft. N and 320 ft. E of SW of Laura Carter Sur., Sec. 13, Blk. 19, T.&P. Sur. — Drlg. 2,365 ft.

Woods & Williams' No. 1 M. A. Parr, about 500 ft. S and E of NW cor. G. A. Kirkland Sur. A-507. — Drlg. 1,100 ft.

W. W. Zingery et al's No. 1 J. T. Thomas, 250 ft. S and 103 ft. W of extreme NE cor. Sec. 13, Blk. 19 — Rig.

KENT COUNTY

J. S. Cosden & Co.'s No. 1 Wallace, Sec. 56, Blk. 98, H.&T.C. Sur. — Drlg. 2,485 ft.

Pursley Ranch Dev. Co.'s No. 1 fee, 300 ft. E and 150 ft. N of SW cor. Sec. 8, Blk. H, H.&T.B. Sur. — Location.

KNOX COUNTY

Deep Rock Oil Co.'s No. 1 Moore — Shut down 2,495 ft. for repairs.

Deep Rock Oil Co.'s No. 1 Big Four, 1,270 ft. S and 2,500 ft. W of NE cor. Sec. 21, Blk. 4 — Shut down 4,516 ft.; hole full of water.

LOVING COUNTY

Lockhart & Co.'s No. 2 Allen, 330 ft. NW and 330 ft. NE Sec. 82, Blk. 33, H.&T.C. — Top salt 722 ft.; drlg. 2,050 ft. sand.

Lockhart & Co.'s No. 1-A Lepp, Sec. 85, Blk. 33 — Set 6-in. casing 3,950 ft.; oil show 4,095-4,135 ft.; 250,000 ft. gas cleaning out 4,178 ft.; 2,000,000 ft. gas 4,172-75 ft.; top black lime 4,095 ft.; shut down 4,290 ft.; flows 20 bbls. daily.

Lockhart et al's No. 1 Wheat & Ramsey, 1,650 ft. NW and 900 ft. SW Sec. 83, Blk. 1, W.&N.W.R.R. Sur. — Top salt 1,120 ft.; drlg. 4,140 ft. anhydrite; set 6⅝-in. 4,024 ft.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22 — Shut down 600 ft.

J. C. Barnett and T. H. Drake's No. 1 Callan City Co. Ranch, Sec. 22 — Show oil 1,857 ft.; drlg. 2,050 ft.

Panhandle O. & R. Co.'s No. 1 G. P. Eckardt, C SW Sec. 10, Blk. 2, TW.N.G.R.R. Sur. — Top pay 3,001 ft.; 2,000 ft. fluid in hole; run 5 3/16-in. casing 3,013 ft.

Sorrels & Jackson's No. 1 F. Wilhelm, C NE Sec. 6, Blk. C, Brooks & Burleson Sur. — Shut down 290 ft.

MIDLAND COUNTY

Shelton et al's No. 1 Kloh & Rumsey, 600 ft. N and E of SW cor. Sec. 13, Blk. 40, T-4-S, T.&P.R.R. Sur. — Top salt 1,800 ft.; drlg. 4,345 ft. salt and anhydrite.

Shoup et al's No. 1 Roy Parks, C NW Sec. 34, Blk. 41, Twp. 2s, T.&P. — Top salt 1,700 ft.; cem. 8⅛-in. casing 2,770 ft.; show oil 3,330 ft.; shut down 4,004 ft.

MITCHELL COUNTY

E. P. Campbell et al's No. 1 Pond, 1,065 ft. W, 660 ft. N of SE cor. Sec. 79, Blk. 27, T.&P. Sur. — Shut down 685 ft.

Hucony Gas Co.'s No. 1 C. Weichsel, 2,310 ft. N and 990 ft. E of SW cor. Sec. 78, Blk. 26, T.&P. Sur. — Top lime 1,342 ft.; drlg. 1,990 ft.

Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. — Drlg. 1,120 ft.

NOLAN COUNTY

Herbert Oil Co.'s No. 1 Pepper, C of N half Sec. 32, Blk. 22, T.&P. Sur. — Show gas 3,160 ft.; hole full sulphur water 3,190-3,202 ft.; shut down 3,303 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk .Z, T.C. Ry. Sur. — Top salt 814 ft.; top lime 1,6[illegible] ft.; 3,400,000 ft. gas from 1,611-26 ft.; spraying very little oil; shut down.

George Anderson's No. 1 University, C Sec. 11, Blk. 17 — Top salt 1,030 ft.; shut down 1,8[illegible] ft.

California Co.'s No. 1 M. A. Smith, Lease No. 1, 990 ft. S and 1,005 ft. E of NW cor. Sec. 21, Blk. 194, H.&G.N. Sur. — Location.

California Co.'s No. 5 Smith, Lease No. 1, 2,668 ft. N and 1,355 ft. W of SE cor. Sec. 23, Blk. 194, G.C.&S.F. Sur. — Bldg. rig.

California Co.'s No. 6 Smith, Lease No. 1, 990 ft. N and 1,136 ft. W of SE cor. Sec. 23 — Bldg. rig.

M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G.W. Sur., elev. 2,555 ft. — Top lime 1,305 ft.; shut down 1,6[illegible] ft. for pipe.

Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A16,387 — Drlg. 660 ft.

Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur. — Shut down 1,010 ft.

McDonald et al's No. 1 A. Parsell, C NW SE Sec. 26, Blk. A, G.C.&S.F.R.R. Sur. — Shut down 100 ft.

McCarty Oil Co.'s No. 1 Bennett, 960 ft. S and E of NW cor. Sec. 592, G.C.&S.F. Sur. — Drlg. 310 ft.

Mid-Kansas Oil & Gas Co.'s No. 11 Yates-C, 250 ft. S and 845 ft. E of NW cor. Sec. 60, Blk. 1, I.&G.N. — Drlg. 515 ft.

Pecos Valley Oil Co.'s No. 1 fee, Sec. 22, Blk. 18, H.&G.N. Sur. — Set 8-in. casing 1,015 ft.; top sa[illegible] 1,115 ft.; drlg. 1,320 ft.

B. J. Spikes' No. 1 George Brown — Shut down 700 ft.

Rio Pecos Oil Co.'s No. 1 Yates, 330 ft. S and E of NW cor. Sec. 543, Blk. 1, H.&G.N. — Shut down 502 ft.

Roxana Pet. Corp.'s No. 3 Smith-D, 330 ft. S and E of NW cor. of S half of Sec. 24, Blk. 194, G.C.&S.F. Sur.—Shut down 145 ft.

Roxana Pet. Corp. and Kirby Pet. Co.'s No. 1 University, Sec. 23, Blk. 26—Hole full sulphur water 1,400-50 ft.; shut down 3,070 ft.; 8-in. casing 3,065 ft.; drlg. 3,462 ft.; sulphur water 3,195 ft.; shut down 4,002 ft.

Schumaker et al's No 1 Williams et al, 330 ft. N of middle of S line, Sec. 1, Blk. 117, G.C.&S.F.—Spudded and shut down.

Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&S.L. Sur.—Show gas 1,455-60 ft.; shut down. 2,964 ft.; cleaning out.

Talbot & Ditman's No. 1 Unsicker, 1,320 ft. from E and 660 ft. from S lines, Sec. 25, Blk. 10, H.&G.N.—Spudded and shut down.

Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18—Top lime 1,155 ft.; shut down 4,130 ft.

World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft.—Shut down 3,105 ft.

PRESIDIO COUNTY

Eastland Oil Co.'s No. 1 Smith, Cen. Sec. 17, Certificate 463, or Blk. 351, G.C.&S.F.R.R.—Spudded and shut down.

Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootie Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur.—Fishing 690 ft.

L. C. Brite's No. 1 Lee, Sec. 50, Blk. 12, G.H.&S.A. Sur., center of section—Drlg. 2,700 ft.

REAGAN COUNTY

Empire Gas & Fuel Co.'s No. 1 Sawyer Cattle Co.-A 4,160 ft. from S line and 330 ft. from W line of Sec. 18, Blk. A, Leonard G. Gee Sur.—Top salt 910 ft.; drlg. 1,850 ft.

Texon O. & L. Co.'s No. 1-B University Group 1—Top pay 6,250 ft., hole full of oil; well made two small heads; drlg. 8,435 ft.

Skelly Oil Co.'s No. 3 University, 2,310 ft. N and E of SW cor. Sec. 33, Blk. 8, University Land—Top salt 1,320 ft.; drlg. 1,890 ft.

REEVES COUNTY

D. F. Davis et al's No. 1 H. C. McCart, 300 ft. S and 200 ft. W of NE cor. S half NW Sec. 26, Blk. C-18—Shut down 25 ft.

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft.—Total depth 2,900 ft.; shut down.

Dr. Kitsis et al's No. 1 Kloh & Rumsey, 330 ft. N and W of SE cor. Sec. 5, Blk. 54, Twp. 5, T.&P. Sur.—Shut down for 12-in. casing at 150 ft.

David R. Thompson's No. 1 A. A. Eddins—Swedging csg. 5,658 ft.; pulling 5-in. csg.

World Oil Co.'s No. 1 A. L. Duff, 1,500 ft. from S. 850 ft. from NE. R. S. Johnson Sur. No. 68—Elev. 2,774 ft.; total depth 4,515 ft.; plugged back 4,223 ft.; hole full fluid, slopping 1 bbl. of oil daily.

RUNNELS COUNTY

Agnew & Sons, Inc., No. 1 R. R. Russell, in Mrs. H. Holbien Sur. No. 13½—Show oil and gas 3,990 ft.; hole full water 4,025 ft.; total depth 4,026 ft.

R. D. Hamilton et al's No. 1 A. Spill, 1,320 ft. S and W of NE cor. A. Spill 891 acres, out of Thomas R. Webb Sur. No. 358—Shut down 100 ft.

Jones Oil Syndicate's No. 1 W. Dale, 212 ft. from N line, 150 ft. from W line Sec. 109, E.T.R.R.—Shut down 2,245 ft.

McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R.—Shut down 1,185 ft.

Nourse & Tilton's No. 1 R. A. Cramer, 200 ft. S. 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2—Shut down 100 ft.

Kennedy et al's No. 1 J. E. Tally, 1,200 ft. from N line, 800 ft. from E line Sec. 534, V. V. McKenon—Shut down 3,007 ft.

R. B. Summers at al's No. 1 J. W. Reese, M. J. Parramore Sur. 26—Shut down 1,650 ft.

Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor .Sec. 1, H.E.&W.T. Sur.—Cleaning out 670 ft.

SCHLEICHER COUNTY

J. F. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur.—Shut down 275 ft.

SCURRY COUNTY

Landreth Prod Co.'s No. 1 Hillmer, 330 ft. N and E of Sec. 75, Blk. 25, H.&T.C.R.R. Sur.—Top salt 870 ft.; hole full sulphur water 2,740 ft.; drlg. 2,830 ft.

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur.—Spudded and shut down (corrected).

G. E. Dieckman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur.—Drlg. 550 ft.

STERLING COUNTY

F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur.—Running 8¼-in. casing 1,210 ft.

STONEWALL COUNTY

Sun Oil Co.'s No. 1 Reynor, 346 ft. S and W NE cor. Sec. 20, Blk. B, H.&T. C.—Shut down 2,680 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, C.C.S.D.&N.G.R.R. Sur.—Fishing 5,770 ft.

Phillips Pet. Co.'s No. 1 Cusanbary, 2,310 ft. E and 330 ft. S of NW cor. Sec. 39, C.C.S.D.&R.G.N.G. Sur.—Drlg. 190 ft.

TAYLOR COUNTY

Burnham et al's No. 1 A. M. Y. X.—Spudded and shut down.

Grisham-Hunter Oil Corp.'s No. 1 T. L. Stevens, 220 ft. S and E of NW cor. Sec. 53, Blk. 19, T.P. Sur.—Fishing bit 1,890 ft.

Hurley Oil Co.'s No. 1 Mrs. A. R. Payne, 330 ft. N and E of SW cor. E 80 acres of NW Sec. 52, Blk. 19—Fighting cave 685 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T.R.R.—Spudded and shut down.

Champlin Ref. Co.'s No. 1 Corder, C Sec. 110, Blk. 1, C.C.S.D. Sur.—Cem. crevice 3,535-40 ft.; shut down 3,552 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur.—Shut down 1,749 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, Cen. Sec. 78, Blk. D-7, E.L.&R.R. Sur.—Location.

Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur.—Cem. 6⅝-in. casing 3,986 ft.; cem. cave 4,140 ft.; drlg. 4,280 ft.

Woodley & Jones No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur.—Shut down 150 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur.—Underreaming 5 3/16-in. casing 4,430 ft.

TOM GREEN COUNTY

Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur.—Shut down 1,800 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer—Shut down 1,920 ft.

F. P. Green et al's No. 1 fee, 575 ft. from N and 1,450 ft. from W lines Sec. 165, District 11, S.P.R.R. Co. Sur.—Shut down 1,066 ft.

McLaughlin & Ridge's No. 1 R. Q. Holder, 3,140 ft. N and 80 ft. W SE cor. J. P. Parker Sur. (3,000-ft. test)—Show gas 1,757-59 ft.; shut down 3,005 ft.; hole full water 2,986 ft.

Tulsa Oil Co.'s No. 1 Adams, C SW Sec. 163, Blk. 11, S.P.R.R. Sur.—Shut down 1,050 ft.

UPTON COUNTY

Champlin Oil & Ref. Co.'s No. 4 J. F. Lane, 990 ft. from S. 330 fet. From W line of SE Sec. 2, G.C.&S.F. Sur.—Flowed 30 bbls.; straightreaming 1,975 ft.; 1,000 ft. fluid in hole, 50 per cent water.

Gulf Prod. Co.'s No. 7 J. F. Lane, 990 ft. N and 326 ft. W of most southerly SE cor. of their 160-acre tract Sec. 3, G.C.&S.F. Sur.—Top salt 475 ft.; 250,000 ft. gas 2,700 ft.; setting 10-in.

Keck Investment Co.'s No. 1 H. L. McClintic, 330 ft. S and W NE cor. Sec. 206, Blk. F, C.C.S.D.&R.N.G. Sur.—Top salt 1,100 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft.—Cleaning out 4,400 ft.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft.—Gas sand 2,491-2,520 ft., tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.RG.N.G. Sur.—Drlg. 360 ft.

Dyar Brothers et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur.—Show oil and gas 1,055 ft.; drlg. 1,400 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y—Set 15½-in. casing 767 ft.; fishing 1,204 ft.

WARD COUNTY

Denver P. & R. Co.'s No. 1 Cherokee Land & Investment Co., 990 ft. from NEL and 2,310 ft. from SEL Sec. 215, Blk. 34, H.&T.C. Sur. (4,000-ft. test)—Set 8¼-in. casing 2,505 ft.; top salt 2,755 ft.; drlg. 4,640 ft., anhydrite.

E. B. Lovelace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162, Blk. 34, H.&T.C.R.R.—Spudding and shut down.

Prairie Oil & Gas Co.'s No. 1 Sealy Estate, 1,320 ft. S and W Sec. 95, Blk. A, G.M.M.B.&A. Sur.—Top salt 1,073 ft.; 5,000,000 ft. gas 2,526 ft.; gas decreased to 2,000,000 ft. at 2,637 ft.; shut down 2,937 ft., lime.

Rector Oil Co.'s No. 1 Johnson, 1,150 ft. NW, 5,610 ft. NE, Sec. 10, Blk. 32, H.&T.C.—Top salt 745 ft.; fishing 2,085 ft.

Shipley et al's No. 1 Hazlett, 2,310 ft. NE and 2,310 ft. SE Sec. 17, Blk. 5, H.&T.C.—Top salt 727 ft.; sand pay 2,480-81 ft.; flows better than 50 bbls. every 36 hrs., 34.6 gravity.

Talbot, Dittman & Atlantic O. P. Co.'s No. 1 Dorr, 1,320 ft. from SE line and 660 ft. from SW line of Sec. 9, Blk. 5, H.&T.C. R. R. Sur.—Spudding.

WINKLER COUNTY

Anderson et al's No. 1 Hendricks, NW NE SE Sec. 3, Blk. B-12—Location.

Atlantic O. P. Co. et al's No. 2 Daugherty, 2,310 ft. N and E of SW cor. Sec. 3, Blk. 74, Public School Land—Top lime 2,668 ft.; cem. 8¼-in. casing 2,673 ft.; drlg. 2,680 ft., lime.

Atlantic O. P. Co.'s No. 1 Hendricks-H, 2,310 ft. N and 1,650 ft. W of SE cor. Sec. 30, Blk. B-5, School Land—Top lime 2,785 ft.; drlg. 3,035 ft., lime.

Amerada Pet Corp.'s No. 1 L. Daugherty, 2,310 ft. N and W of SE cor. Sec. 3, Blk. 74, Public School Land—Top lime 2,648 ft.; set 8-in. casing 2,653 ft.; oil show 2,729 ft.; drlg. 2,865 ft.

Amerada Pet. Corp.'s No. 2 Daugherty, SW cor. SE Sec. 3, Blk. 74—Drlg. 250 ft.

Amerada Pet. Corp.'s No. 3 Daugherty, NW cor. NE SE Sec. 3, Blk. 74—Location.

V. T. Bolin et al's No. 2 Brown, 2,000 ft. S and W of NE cor. Sec. 4, Blk. B-5, Public School Land—Rigged up rotary and shut down.

Barnsdall Oil Corp.'s No. 1 Tobe Morton, 330 ft. N and E of SW cor. Sec. 26, Blk. B-12—Drlg. 2,608 ft., anhydrite.

Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12—Spudding.

Cranfill & Reynolds' No. 1 Hendricks-F, 660 ft. S and 2,310 ft. E of NW cor. Sec. 16, Blk. 26—Top salt 1,985 ft.; drlg. 2,730 ft., anhydrite.

Cranfill Bros. & Pickrell's No. 1 Hutchins, 2,310 ft. N and 330 ft. E of SW cor. Sec. 47, Blk. 26—Cem. 8¼-in. casing 2,285 ft.; top lime 2,280 ft.; 2,000,000 ft. gas 2,290 ft.; cem. 6⅝-in. casing 2,636 ft.; drlg. 2,864 ft.

Culberson Bros.' No. 1 Hendricks, 1,650 ft. N and W of SE cor. Sec. 40, Blk. B-5, School Land—Top lime 2,270 ft.; cem. 8-in. casing 2,272 ft.

Empire Gas & Fuel Co.'s No. 2 Daugherty, 330 ft. N and 2,310 ft. E of SW Sec. 3, Blk. 74—Rig up rotary.

Empire Gas & Fuel Co.'s No. 3 Daugherty, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. 74—Rig.

Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74—Rig up rotary.

Flandell & Co.'s No. 1 Carter, 640 ft. S, 330 ft. W Sec. 26, Blk. B-3—Set 12½-in. casing 272 ft.; shut down 400 ft.

Gulf Prod. Co.'s No. 2 O'Brien, NW cor. Sec. 31, Blk. F.—Drlg. 1,845 ft., anhydrite.

Gulf Prod. Co.'s No. 3 O'Brien, Sec. 31, Blk. F—Rigging.

Gulf Prod. Co.'s No. 1 Ida Hendricks, SE cor. NW, Sec. 44, Blk. 26—Drlg. 565 ft.

Independent O. & G. Co.'s No. 3 McCabe, 990 ft. S and 2,310 ft. W of NE cor. Sec. 36, Blk. B-5, School Land—Top salt 950 ft.; top lime 2,296 ft.; oil show 2,515 ft.; drlg. 2,796 ft., lime.

Magnolia Pet. Co.'s No. 1 Scarborough, 2,310 ft. S and 990 ft. E Sec. 1, Blk. C-22—Drlg. 1,450 ft.; top salt 1,122 ft.

Marland Oil Co.'s No. 1 Tobe Morton, SE cor. Sec. 27, Blk. B-12—Rig.

May Prod. Co.'s No. 1 Hendricks, 1,320 ft. N and 2,310 ft. W of SE Sec. 34, Blk. 26, Public School Land—Top lime 2,449 ft.; set 6⅝-in. casing 2,455 ft., oil show 2,710 ft.; shut down 2,881 ft.; flowing 7 bbls. daily.

Prairie Oil & Gas Co.'s No. 1 E. W. Cowden, 2,310 ft. N and 339 ft. E of SW cor. Sec. 3, Blk. B-12—Top lime 2,455 ft.; cementing 8¼-in casing 2,475 ft.; oil and gas show 2,790 ft.; drlg. 2,812 ft.

Prairie Oil & Gas Co.'s No. 2 Cowden, 1,320 ft. N and 330 ft. E of SW cor. Sec. 3, Blk. B-12—Cem. 8¼-in. casing 2,518 ft.; top lime 2,518 ft.; gas show 2,539 ft.; drlg. 2,570 ft.

Prairie Oil & Gas Co.'s No. 3 Cowden, 2,200 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12—Rigging up rotary.

Prairie Oil & Gas Co.'s No. 1 Leck, 330 ft. S and 2,310 ft. E of NW cor. Sec. 16, Blk. 74—Bldg. rig.

Prairie O. & G. Co.'s No. 2 Leck, 330 ft. S and 2,310 ft. W of NE cor. Sec. 16, Blk. 74—Location.

Prairie Oil & Gas Co.'s No. 1 Tobe Morton, 330 ft. N and 1,650 ft. W of SW cor. Sec. 27, Blk. B-12—Bldg. rig.

Roxana-The Texas Company's No. 6-A Cowden, 1,320 ft. S and 990 ft. E of NW cor. of Sec. 3, Blk. B-12, School Land—Location.

Roxana Pet. Co.'s No. 1 Daugherty, 2,310 ft. S and W of NE cor. Sec. 3, Blk. 74—Drlg. 65 ft.

Roxana Pet. Co. et al's No. 2 Lum Daugherty., 2,310 ft. S and 1,650 ft. W of NE Sec. 3, Blk. 74—Rig.

Simms Oil Co. and Southwest O. P. Co.'s No. 1 George Sealey, 2,434 ft. S and 330 ft. W of NE cor. Sec. 50, Blk. F—Moving on ground.

Southern C. O. P. Co.'s No. 2 Hendricks T-67-2-D, 1,650 ft. S and 330 ft. W of Sec. 28, Blk. 26—Cem. 12½-in. casing 468 ft.; top lime 2,639 ft.; total depth 2,654 ft.; rigging up standard tools.

Southern C. O. P. Co. and Westbrook-Thompson's No. 3 Hendricks T-88-T, Sec. 34, Blk. 26, Public School Land—Top lime 2,452 ft.; set 8-in. casing 2,473 ft.; drlg. 3,024 ft., lime.

Southern C. O. P. Co. and Westbrook-Thompson's No. 1 Hendricks T-88-D, 2,310 ft. N and 330 ft. W of SE cor. Sec. 4, Blk. B-12, Public School Land—Topped lime 2,486 ft.; pay 2,725 to 2,890 ft.; 1,550 bbls. hourly.

Southern C. O. P. Co. and Westbrook-Thompson's No. 2 Hendricks T-88-R, 1,320 ft. N and 330 ft. E of SW cor. Sec. 27, Blk. 26—Top lime 2,300 ft.; cem. 2,320 ft.; bailing casing 2,320 ft.; drlg. 2,415 ft.

Southern C. O. P. Co. and Westbrook-Thompson's No. 1 Hendricks T-88-Q, 440 ft. N and 330 ft. E of SW cor. of N half Sec. 27, Blk. 26—Drlg. 500 ft.

Southern C. O. P. Co. and Westbrook-Thompson's No. 3 Hendricks T-89-C, 2,310 ft. N and W of SE cor. Sec. 35, Blk. B-5—Drlg. 130 ft., sand.

TEXAS PANHANDLE WILDCATS

(Continued from Nage 47)

COTTLE COUNTY

Expltn. Co.'s No. 1 Richards ..... Drlg. 410 ft.
Expltn. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur. ..... Drlg. 1,885 ft.
Skelly Oil Co.'s No. 1 J. H. Cannon ..... H.F.W. 3,558 ft; fish. 3,610 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft E of NW cor. Sec. 551, Blk. H, W.&N.W. Sur. .. Drlg. 3,200 ft.

FLOYD COUNTY

Expltn. Co.'s No. 1 S. H. Boone, C. C. H. Johnson Sur. .. S.D. 4,015 ft.

GRAY COUNTY

Adams Oil Co.'s No. 2 Morse, 330 ft. from E line and 990 ft. from S line, Sec. 3, Blk. 26, H.&G.N.R.R. Sur. .. Drlg. 2,130 ft.
B. S. Arnold's No. 1 J. E. Mingale, cen. east 160 acres, Sec. 212, Blk. B-2, H.&G.N. Sur. ..... Rig.
Arnold & Howell's No. 1 Turnex, C SW, Sec. 111, Blk. B-2 ..... S.D. 2,224 ft. for pipe.
Biggs et als' No. 1 Morse, SW cor. Sec. 3, Blk. 26, H. &G.N Sur. ..... 10,000,000 ft. gas 2,192-2,350 ft; C.O. 2,590 ft.
Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N.R.R. Sur. .... Cellar.
Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur. ..... S.O. 2,400 ft; S.D. 2,640 ft.
Danciger et als' No. 1 Shaw, 1,000 ft. N and 330 ft. W SE cor. SW, Sec. 6, Blk. 1, A.C.H.&B. Sur. ..... 35,000,000 ft. gas 2,290 ft; show oil 2,610-13 ft; S.D. 2,683 ft.
Danciger O. & R. Co.'s No. 3 J. S. Morse, 330 ft. each way from NE cor. SW, Sec. 2, Blk. 26, H.&G. N.R.R. Sur. ..... Drlg. 1,780 ft.
Delmar Oil Co.'s No. 1 F. Foster, NW cor. SW, Sec. 55, Blk. B-2, H.&G.N. Sur. ..... Show oil; 4,000,000 ft. gas 2,835-97 ft; T.D. 3,757 ft; to plug back to 2,950 ft. and shoot.
Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE, E ½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. ..... Rig.
Sines & Reiger's, formerly Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 acres of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. ..... S.D. 3,206 ft.
Get Oil Co.'s No. 1 LeFors Townsite, 765 ft. from E line and 1,397 ft. from S line, being center of Lot 16, Blk. 5 ..... Derrick.
Gulf Prod. Co.'s No. 6 J. B. Bowers-A, 330 ft. S and E of NW cor. W ½, Sec. 89, Blk. B-2, H.&G.N. Sur. ... Drlg. 1,140 ft.
Gulf Prod. Co.'s No. 3 Holmes-A, 330 ft. N and E of SW cor. W½ SE, Sec. 87, Blk. 3, I.&G.N. Sur. ..... Top lime 2,321 ft; drlg. 2,685 ft.
Gulf Prod Co.'s No. 1 McLarty, 150 ft. N and 482 ft. W of SE cor. NE, Sec. 2, Blk. 1, A.C.H.&B. Sur. .... Drlg. 2,445 ft.
Gulf Prod. Co.'s No. 1 Saunders, 990 ft. N and 330 ft. E of SW cor. Sec. 3, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 1,590 ft.
Gardner Bros. et als' No. 1 Ball, 323 ft. from N line and 336 ft. from E line of W 186.3 acres of N½, Sec. 3, Blk. B-2, H.&G.N. Sur. ..... Flowed 85 bbls. 2,696-2,741 ft.; run 6-in. 2,750 ft.
Gardner, Collins et als' No. 1 Saunders, 330 ft. each way from NE cor. of S 49 acres of W 100 acres, Sec. 3, B.&B. Sur. ..... Rig.
Landreth Prod. Corp.'s No. 1 Langham, SE cor. E 79 acres of N½, Sec. 1, Blk. 2, H.&G.N. Sur. ..... Shot with 80 qts. 2,688-2,786 ft. and flowed 130 bbls.
LeFors Pet. Co.'s No. 3 Shaw, 990 ft. S and 375 ft. E of NW cor. T. Leach Sur. ..... 30,000,000 ft. gas 2,075-2,340 ft; oil pay 2,631-43 ft; salt wtr. 2,655-60 ft; made 300 bbls. fluid 50% wtr.
LeFors Pet. Co.'s No. 8 Shaw, 288 ft. from N line and 1,091 ft from E line of T. Leach Sur. ..... Drlg. 2,210 ft.
LeFors Pet Co.'s No. 3 J. M. Shaw, 293 ft. from N line and 271 ft. from E line of Leach Sur. ..... Rig.
LeFors Pet. Co.'s No. 4 J. M. Shaw, 1,650 ft. from N line and 375 ft. from W line, T. Leach Sur. ..... Drlg. 1,200 ft.
Magnolia Pet. Co.'s No. 2 Archer, SE N½ SE Sec. 174, Blk. 3 ..... Drlg. 1,840 ft.
Magnolia Pet. Co.'s No. 2 W. Harrah, 990 ft. from N line and 330 ft. from W line of NW, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,990 ft.
Magnolia Pet. Co.'s No. 3 W. Harrah, 330 ft. from NE cor. NW, Sec. 150, Blk. 3, I.&G.N. Sur. ..... Rig.
Magnolia Pet. Co.'s No. 3 fee, 600 ft. from S line and 330 ft. from E line, Sec. 11, Blk. 3, I.&G.N. Sur. .... Drlg. 2,900 ft; 400 ft. oil 2,898-2,900 ft.
Magnolia Pet. Co.'s No. 1 Gething, 530 ft. each way from SE SW Sec. 14, Blk. A-9, H.&G.N. Sur. ..... Rig.
Magnolia Pet. Co.'s No. 1 Saunders, 330 ft. from SE W½ of NW, Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 2,260 ft.
McElroy Oil Co.'s No. 2 Bruce Bull, 155 ft. from N line and 240 ft. from W line of E 87.3 acres of Sec. 3 Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 1,650 ft.
McMan O. & G. Co.'s No. 2 Binkley, 330 ft. each way from NW cor. W½ SE cor. Sec. 86, Blk. 3, I.&G. N. Sur. ..... Drlg. 2,754 ft.
Midwest Expltn. Co.'s No. 2 L. Holmes, 330 ft. from N and 357 ft. from E lines, SW, Sec. 86, Blk. 3. .... Swb. 5 bbls. per hr., 5 pct. wtr. at 3,127-62 ft; T.D. 3,211 ft.
Osborn et als' No. 1 E. E. Barrett, SE cor. NE, Sec. 111, Blk. 3, I.&G.N. Sur. ..... Fishing 3,275 ft.
Parton & Holt's No. 1 Gething, 330 ft each way from SE cor. NE Sec. 14, Blk. A-9 ..... Cellar.
Phillips Pet. Co.'s No. 4 Johns, 330 ft. each way from NE cor. SE SW Sec. 87, Blk. 3, I.&G.N. Sur. ..... Location.
Phillips Pet. Co.'s No. 1 Bob Olsen, NW cor. S½, Sec. 64, Blk. B-2 ..... T.D. 3,239 ft; plugged back to 3,230 ft; shot with 440 qts. at 3,119-3,322 ft; 600 ft. oil and 60 ft. wtr. in hole; C.O. 3,342 ft.
Plains Drlg. Co.'s No. 2 Saunder, 990 ft. from S line and 330 ft. from E line of E ½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 200 ft.
Pure Oil Co.'s No. 8 Davis, 330 ft. from NW of NE, Sec. 86, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,942 ft.
Purple Sage Oil Co.'s No. 2 E. B. Johnson ..... 2,000,000 ft. gas; 200 ft. oil 2,870 ft; shot with 510 qts. 2,775-2,372 ft.; 406 ft. oil; fish. 2,875 ft.
Republic Prod. Co.'s No. 1 G. H. Saunders, 330 ft. each way from SW cor. E½ NW cor. Sec. 4, Blk. 1, A. C.H.&B Sur. ..... Drlg. 2,500 ft.
Schwald et als' No. 1 fee, 330 ft. each way from NE cor. E ½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. ..... Drlg. 631 ft.
Shamrock Oil Co.'s No. 1 W. S. Clayton, 366 ft. from NW cor. of E 278.4 acres, Sec. 50, Blk. 25, H.&G.N. .. Cmt. 8¼-in. csg. 2,196 ft. and S.D.
Skelly Oil Co.'s No. 1 Saunders, 330 ft. from E line, 990 ft. from S line, SW, Sec. 4, Blk. 1, A.C.H.&B. Sur. .. Rig.
Skelly Oil Co.'s No. 2 Saunders, 231 ft. from S line, 1,127 ft. from W line, SW, Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Rig.
Skelly Oil Co.'s No. 3 Saunders, 330 ft. from N line and 990 ft. from W line, SW cor., Sec. 4, Blk. 1, A.C. H.&B. Sur. ..... Rig on ground.
Skelly Oil Co.'s No. 4 Saunders, 330 ft. from N line and 990 ft. from E line, SW cor., Sec. 4, Blk. 1, A. C.H.&B. Sur. ..... Rig.
St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R. ..... S.D. 1,600 ft.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.
The Texas Co.'s No. 5 A. Chapman, 1,125 ft. from W and 330 ft. from S lines, SE, Sec. 51, Blk. 25, H. &G.N. Sur. ..... Cellar.
The Texas Co.'s No. 3 Davis, 990 ft. from E line and 330 ft. from N line NW, Sec. 86, Blk. 3, I.&G.N. Sur. .. Drlg. 2,800 ft.
The Texas Co.'s No. 3 M. B. Davis, 2,309 ft. from S line and 2,312 ft. from E line, Sec. 8, Blk. 1, A.C. H.&B. Sur. ..... Drlg. 2,170 ft.
The Texas Co.'s No. 4 H. M. Davis, SE cor. NW, Sec. 86, Blk. 3, I.&G.N. Sur. ..... Drlg. 2,045 ft.
The Texas Co.'s No. 3 McLarty and Lester-A, 330 ft. from NE W½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. .... Drlg. 2,510 ft; spraying 10 bbls. from 2,490 to 2,510 ft.
The Texas Co.'s No. 1 Bull, 1,042 ft. from N and 330 ft. from E lines, Sec. 2, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,500 ft.
The Texas Co.'s No. 7 Saunders, 990 ft. from S line and 330 ft from W line of W½ SE cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. ..... Rig.
The Texas Co.'s No. 3-C Thut, 370 ft. from S and 349 ft. from E lines, Sec. 11, H.&G.N. Sur. ..... Flowing 10 bbls. hourly 2,745-56 ft. 20% wtr.
Travis et als' No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... Drlg. 2,510 ft.
Ware et als' No. 1 fee, 990 ft. from N and 400 ft. from W lines, Sec. 18, Blk. 3, A.&B.M. Sur. ..... Rig.
Wilcox Pampa Oil Co.'s No. 29 Wooley & Reynolds, 330 ft. S and W of NE SW, Sec. 61, Blk. 3, I.&G.N. Sur. .. Run 5-in. csg. 3,044 ft.
Wilcox Pampa Oil Co.'s No. 30 Wooley & Reynolds, NW SE NW, Sec. 61, Blk. 3 ..... Drlg. 2,874 ft.
United Eight O. & T. Co.'s No. 1 E. B. Clay, SE cor. W½ SW, Sec. 177, Blk. B-2 ..... 12,000,000 ft. gas 2,955 ft; run. 6-in. 2,980 ft.

HALL COUNTY

Rio Bravo Oil Co.'s No. 1 Hughes est., 950 ft. from N line, 150 ft. from E line, Sec. 39, Blk. H, I. A. Stephens Sur. ..... Set 6-in. 3,500 ft; drlg. 3,850 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County school lands; elevation 3,363 ft; contract depth, 5,000 ft. ..... S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk 21 ..... 15,000,000 ft. gas 3,300-35 ft; T.D. 3,601 ft. to deepen.

HUTCHINSON COUNTY

R. G. Barnum et als' No. 1 Garland Sanford, Sec. 78, Blk. 4* ..... S.O. 2,920 ft; S.D. 3,020 ft.
Barnum & Delmar's No. 1 Johnson Bros., NW cor. E½, NW, Sec. 37, Blk. Y, A.&B. Sur. ..... 2,000 ft. oil 2,954-3,011 ft; swb. 150 bbls. after 160-qt. shot; T.D. 3,020 ft; to deepen.
Devonian Oil Co.'s No. 9 Johnson Bros., 330 ft. S and W of NE cor. of Lot 3, Johnson Bros. Subdivision, M. Whitley Sur. ..... Drlg. 1,550 ft.
Dunnigan et als' No. 1 C. W. Hugenbyhl, 330 ft. from S line and 330 ft. from E line, N½, Sec. 4, Blk. T. W.N.G.R.R. Sur. ..... Rig.
Oil Operators Trust Co. and Mariand's No. 2 J. M. Stanford-B, Sec. 82, Blk. 46, H.&T.C. Sur. ..... S.D. 3,039 ft.
Phillips Pet. Co.'s No. 13 Elva Whittenburg, E. Tomlinson Sur. ..... S.D. 5,333 ft.
Phillips Pet. Co.'s No. 3 Johnson Bros. (Florence), 412 ft. from W and 270 ft. from N lines, Tract 2, of Geo. Montgomery Sub-div. of Mary Whitley Sur. .... Drlg. 2,820 ft.
Phillips Pet. Co.'s No. 19 Perkins-Martin, 990 ft. S and 330 ft. E of NW cor. of W 240 acres of S 320 acres of Sec. 1, Blk. X02, H.&O.B. Sur. ..... Drlg. 710 ft.
Phillips Pet. Co.'s No. 1 Sanford-Felix, 330 ft. S and E of NW cor. of S 40 acres of E 80 acres of S 160 acres of Sec. 77, Blk. 46, H.&T.C. Sur. ..... 100 bbls. 2,929-32 ft; T.D. 2,940 ft.
Phillips Pet. Co.'s No. 1 Sanford-Garford, 330 ft. N and E of SW cor. N 40 acres of E 80 acres of S 160 acres of S 320 acres, Sec. 77, Blk. 46, H.&T. C.R.R. Sur. ..... Drlg. 1,300 ft.
Premier O. & G. Co.'s No. 1 L. E. Borton, C NE NW NW, Sec. 32, Blk. Y, A.&B. Sur. ..... Rigged up and S.D.
Rock Creek Oil Co.'s No. 2 Johnson, 330 ft. from N and W lines SW SE, Sec. 28, Blk. Y, A.&B. Sur. ..... S.D. 2,700 ft.
Sand Creek Oil Co.'s No. 2 J. H. Jasper, 320 ft. from S line and 387 ft. from W line of 100-acre lease, Sec. 23, Blk. M-23, T.C. Sur. ..... T.D. 3,148 ft; P.B. to 3,136 ft; shot with 220 qts. 3,036-3,136 ft; T.P. 300 bbls. fluid 50% wtr.;C.O.
Timms et als' No. 2 Garner, 990 ft. S and 330 ft. E of NW cor. J. W. Proctor Sur. ..... Drlg. 1,140 ft.
Wendell et als' No. 1 Johnson Bros., Sec. 1, Blk. X02 .... Set 10-in. csg. 2,035 ft; S.D.
White Eagle Oil Co.'s No. 4 Johnson Bros. (Montgomery) 330 ft. from N and W lines E½, Tract 2, Geo. Montgomery Sub-div. of Mary Whitley Sur. .... Drlg. 2,100 ft.

KING COUNTY

Humble O. & R. Co.'s No. 1 Pitchfork, Sec. 171, Blk. A-96, John H. Gibson Sur. ..... Drlg. 4,720 ft.
The Texas Co.'s No. 1 J. H. Johnson ..... Pulling 6-in. csg. 4,040 ft.

LAMB COUNTY

Dan Freel et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... Spudded and S.D.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch ..... Small show oil 1,133-40 ft; sand; S.D. 3,943 ft.

MOORE COUNTY

Barnsdall Oil Corp.'s No. 1 L. R. Hagy, NW cor. Thomas Ross Sur. ..... Cmt. 8¼-in. csg. 2,600 ft.; standardizing.
Devonian Oil Co.'s No. 1 J. T. Sneed, Jr., 2,235 ft. from E and 330 ft. from S lines, S 160 acres, N 320 acres of Matilda Robinson Sur. ..... Rig.
Dixie Creek Oil Co.'s No. 1-A Sneed, Jr., 330 ft. N and W of SE cor. E½, Sec. 65, Blk. 3, G.M. Sur. ..... Standardizing 2,332 ft.
Dixie Creek Oil Co.'s No. 4-A Sneed, Jr., 330 ft. S and W of NE cor. E½, Sec. 65, Blk. 3 ..... Stdzng. 2,345 ft.
Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 acres of N 160 acres, Sec. 4, Geo. Mahan Sur. ..... Spudded and S.D.
McMan G. & G. Co.'s No. 1 Sneed, 2,260 ft. S and 330 ft. W of NW cor. J. W. Proctor Sur., but in Matilda Robinson Sur. ..... Drlg. 2,070 ft.
Phillips Pet. Co.'s No. 1 J. T. Sneed (James) 330 ft N and W of SW cor. P. Bazemore Sur. ..... Standardizing 2,184 ft.
Phillips Pet. Co.'s No. 2 J. T. Sneed, 660 ft. S and 330 ft. W of NW cor. J. H. Proctor Sur. ..... Stdgnz. 2,253 ft.
Phillips Pet. Co.'s No. 3 Sneed (James), 660 ft. S and 330 ft. W of NW cor. J. W. Proctor Sur., but in Matilda Robinson Sur. ..... Rig.
Prairie and Shamrock's No. 3 Gober, 2,302 ft. from N and 890 ft. from W lines of Sec. 16, Blk. M-1, G. &M. Sur. ..... Set 8-in. 2,696 ft; 20,000,000 ft. gas 2,745-3,366 ft; cmt. 6-in. 3-505 ft; 1,000 ft. wtr. 2,705 ft; T.D. 3,745 ft; P.B. to 3,505 ft. to complete as gasser.
Skelly Oil Co.'s No. 4 Armstrong & Byrd, 1,600 ft. S and 330 ft. E of NW cor. J. W. Proctor Sur. ..... Top lime 2,317 ft; first gas 2,505 ft; drlg. 2,675 ft.
Skelly Oil Co.'s No. 5 Armstrong & Byrd, 2,260 ft. S and 330 ft. E of NW cor. J. W. Proctor Sur. ..... Drlg. 660 ft.

MOTLEY COUNTY

Expltn. Co.'s No. 1 Tillson ..... S.D. 750 ft. for repairs.
Expltn. Co.'s No. 2 Matador Land & Cattle Co., C SW Sec. 37, John Gibson Sur. ..... S.D. 4,000 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A ..... Formerly abd. at 5,240 ft; small show 36 grav. oil 5,288-91 ft; drlg. shale cave 5,710 ft.

WHEELER COUNTY

Angus et als' No. 2 Morgan, C E½ NW NE, Sec. 93, Blk. 17, H.&G.N. Sur. ..... Drlg. 675 ft.
Arnold Oil Co. et als' No. 1 Ritchey, 420 ft. from E and 460 ft. from S lines of NW cor., Sec. 5, Blk. 24, H.&G.N. Sur. ..... Rig.
Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. ..... Drlg. 1,940 ft.
Chapman & Morgan's No. 1 Otis Hatcher, NW cor. SW SE, Sec. 62, Blk. 17, H.&G.N. Sur. ..... S.D. 715 ft.
Lone Star Co.'s No. 1 Ackley, C NE NE, Sec. 20, Blk. 24, H.&G.N. Sur. ..... Drlg. 1,500 ft.
Lone Star Co.'s No. 1 Hicks, C SW NE, Sec. 52, Blk. 17, H.&G.N. Sur. ..... Rig.
Lone Star Co.'s No. 1 Shelton, C NE SE, Sec. 22, Blk. 24, H.&G.N. Sur. ..... Location.
Martin & Debon's No. 1 Gossett, C SE SE, Sec. 101, Blk. 23, H.&G.N. Sur. ..... S.D. 1,625 ft.
L. W. Rook's No. 1 M. Nelson, C SW NE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Fish. 1,950 ft.
L. W. Rock's No. 2 A. Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. ..... Rig.
Upham Gas Co.'s No. 1 Lamb, C N½ NE SW, Sec. 91, Blk. 17, H.&G.N. Sur. ..... S.D. 1,755 ft.
White et als' No. 1 J. M. Shelton, C SW NE, Sec. 100, Blk. 17 ..... Top lime 2,094 ft.; S.D. 2,195 ft.

TREND IS TOWARD WATER TRANSPORTATION

(Continued from Page 80)

this problem by moving its lake boats to the coast during the closed season. This company will lease equipment on the coast during the summer months and use its own boats at inland points. During the winter months these small boats can be used in coastal service and part of the leased equipment given up. Usually tankers and tugs are available for leasing along the coast and this fact simplifies the problem of refiners and marketers operating in that area.

Transportation being closed part of the year along the lakes, rivers and canals together with the fact that water movement at best is slow when compared with that of railroads will mean that large storage facilities must be provided at the water terminals. This investment plus evaporation losses in some cases will add greatly to the charge which should properly be made against the water movement. An executive of one company said his investigation had convinced him that this matter of large storage plus idle equipment means that water transportations along the Great Lakes and large rivers was impractical except in cases where long hauls were possible. He suggested that a separate transportation company to handle the water movement of petroleum products would be able to take care of the available business at a much lower cost than could the separate companies.

Rail vs. Water Rates

In regard to the comparative costs for short hauls, there are other investigators who disagree with the one just quoted. The rail rate on gasoline and kerosene from Toledo to Detroit at present is 11 cents per 100 pounds or .73 cents per gallon. One Toledo refiner estimates that his company will be able to ship by water at .25 cents per gallon. The present rail rate from Chicago to Toledo is 1.58 cents per gallon. It is claimed that with a water movement this can be reduced to .5 cents per gallon.

The water rate from St. Louis to the Twin Cities during the past summer was said to be approximately one-third of the present rail rate. As previously stated cost of water movement will vary widely with different companies, the greatest advantage accruing to the company in a position to move large volumes over long distances. At present it is essentially a large investment operation and for that reason will probably be confined to the major organizations.

National Distribution

The trend toward national distribution on the part of several of the major companies will undoubtedly serve as a stimulus in the development of water transportation. As these companies widen their market territories they are immediately confronted with the problem of transportation costs.

The Texas Company which has carried national distribution farther than any other single company has found it expedient to build new refineries at consuming points for the purpose of lowering these transportation charges as much as possible. For some of the larger companies the building of numerous refineries scattered throughout the county would be uneconomic. They already have the necessary refining capacity with crude oil available. Their problem is to devise methods of lowering transportation charges and movement by water is the only possible solution.

If the waterways are developed as is now proposed some of these major companies operating in the coastal areas including two or three of the Standard units will be able to move their products to all the main consuming points along the Great Lakes in boats sufficiently large to assure low costs. The same situation will apply along the Mississippi and its large tributaries.

It has been pointed out in this connection that it would be possible to move crude oil from South America, California and Gulf Coast terminals to Great Lakes refineries at a cost which presumably would be less than the present pipe line rate from Mid-Continent points. Thus crude oils from all parts of North America and South America would be brought in closer competition, a development which would have direct significance to the producer as well as the refiner and distributor of petroleum products.

EASTERN FIELDS

(Continued from Page 67)

Edward Lightner farm. In Springfield Township, the Gray Oil & Gas Co. is drilling deeper a second test on the J. L. Caseman farm.

Eastern Pennsylvania

Near Charter Oak, Huntingdon County, 11 miles north of Petersburg, Pittsburgh parties are drilling a wildcat and are down 500 feet. It seems like a forlorn hope to expect a producer on the eastern slope of the Appalachian Range and if it should prove a producer it will be the first to get oil or gas.

KENTUCKY-TENNESSEE

(Continued from Page 70)

and Bell's Run areas of Ohio County, has returned from Robinson, Ill., where he made purchase of quantities of casing and other materials, for approximately 60 wells he is expected to get drilled during the winter before the roads open up again. Thomas is operating on 23 farms in that section of Ohio County, the northern part, and using five drilling outfits of his own, besides almost as many contract rigs.

The Pure Torpedo Co. will locate a magazine in the Hartford section of Ohio County, to have the explosive handy for the many large leases in the Taffy section during the winter.

The Foster Petroleum Co. of Oklahoma in connection with McMahan & Coomes, of Owensboro, is starting a well on the home farm of Frank Fuqua, southwest of the Jones Pool, and southwest of Whitesville, in Daviess County.

The W. M. S. Syndicate got a fairly good showing in the Jett sand in No. 5 on the C. M. Fields farm, in the Hayden Pool, of Daviess County, but continued drilling in hope of finding a pay in the Jones sand, but a bad fishing job developed and if not successful in cleaning out the lost tools will no doubt put the well to producing from the Jett sand.

Robbins and Stimson, drilling on the Doctor Fireline lease, in the Jones Pool in southeastern Daviess County, missed the Jones sand and will plug back to the Jett sand for a well. A fairly good show of oil was drilled through in the Jett sand, which will make at least a small producer.

The heavy rain will delay the completion of the pipe line being put into the Red Hill district of Daviess County from Taffy, in Ohio County, by the Producers Pipe Line Co., headed by James C. Ellis.

Good Well in Brown Pool

What is reported to be one of the best wells and most consistent producer is No. 1 on the Howard farm, in the Brown Pool, in Daviess County. This well has been under pump for about four months and is said to be doing 160 bbls. daily. The well was drilled by Miller and Damron of the Creek Drilling Co. No. 2, same farm, struck a stray sand at 1,040 feet, and 14 feet of pay have been drilled into with indications for another good producer.

A syndicate was recently formed by McMahan and Coomes of Vincennes, which includes the following companies: Petroleum Exploration Co., Cumberland Petroleum Co., Paul F. Dahlgren, of Bartlesville, Okla.; Three Sands Oil Co. of Terre Haute, Ind., and Tulsa, Okla.; Mrs. E. D. Noe and Mrs. D. G. Bright of Owensboro. Some time ago McMahan and Coomes secured a block of 3,000 acres in the southern part of Hancock County. It was blocked off into five separate districts on which McMahan and Coomes contracted to drill a well. Each of the parties mentioned was given a 40-acre lease adjoining each of these con-

(Continued on Page 199)

THE TRENCH JOB

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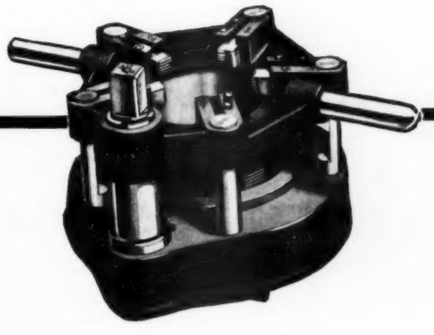
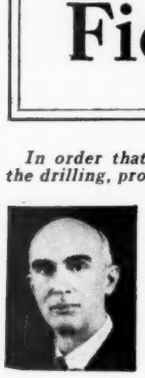


Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.



Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

AIR LIFT OR PUMP?

Just what considerations guide an operator in deciding whether to pump his wells or to put them on the air lift? Can you tell me, too, whether there is any clear, satisfying evidence that either one of these methods of producing a well is better than the other? I have not read much literature bearing directly on this question, but such talks as I have had with other oil men seem to show that there is no unanimity of opinion.—T.E.G.

The most fundamental considerations are formation pressure and the capacity of the wells. The next consideration is whether or not the operator wishes to produce his oil rapidly by air lift or more slowly by the pump. If the wells produce at a satisfactory rate with the back pressure exerted by the gas lift, it is possible to use this method.

Another consideration is that of cost. Many operators have produced vast quantities of oil by the air-lift method in the Seminole district of Oklahoma with little if any profit because of the excessive costs of the air-lift equipment. The air-gas lift method probably yields more oil, and in a very much shorter time, than the pumping method, but it has not been a complete economic success in the Seminole district in that it has produced oil too fast and at too great a cost to earn a satisfactory profit.

Some of the advantages of the air-gas lift method are described by E. O. Bennett and K. C. Sclater in a paper entitled, "Some New Aspects of the Gas Lift," published by the American Institute of Mining and Metallurgical Engineers in "Petroleum Development and Technology" in 1926.

There is no justification for an unqualified statement that either the air-lift or the pumping method is the better. It depends upon the conditions and circumstances in each case.

USE OF MAGNETOMETER

I have been reading in your Oil and Gas Journal the articles written by Mr. Spraragen, and in these articles he mentions frequently the use of a magnetometer. Is it in general use by geologists to assist them in locating oil and gas bearing sand? Is it commercially made and by whom manufactured? I have a large acreage of oil and gas land in the shallow field of southeastern Kansas which I contemplate developing this coming year. Any assistance I could avail myself of in making locations I would be much interested in.—J. H. M.

Geophysical instruments of which the magnetometer is one type are being extensively used in both the United States and foreign countries. The magnetometer is being used extensively by some companies. One large company is reported to have bought more than 20 of these instruments during the past month. While the magnetometer is in extensive use, it would not be correct to say that it is in general use because the use of this and other geophysical instruments is a highly specialized branch of the geologist's profession and most geologists do not use geophysical instruments of any kind. Many of the larger oil companies have geophysical departments composed of highly trained specialists. Most of the geologists have little if anything to do with this work because of its highly specialized nature.

The magnetometer and other geophysical instruments are made on a commercial scale by Askania-Werke A. G., Marine Bank Building, Houston, Tex.

CONCERNING PRESSURES

What is the amount of pressure that would be exerted upon shale by the weight of a column of earth 1,000 feet high and for each 100 feet up to 3,000 feet? Is there any way to compute from a geological structure map how many pounds of pressure has been exerted on some of the beds due to folding? What pressure is requred to force oil out of shale?—D. P. D.

In answer to the first question as to the amount of pressure that would be exerted upon shale by the weight of a column of earth 1,000 feet high and for each 100 feet up to 3,000 feet:

Ordinarily, it is assumed that the weight on the rocks is proportional to the depth. Assuming a rock density of 2.3, this amounts to a pressure of about 1 pound per square inch per foot of depth. In his paper, "On the Limiting Strength of Rocks Under Conditions of Stress Existing in the Earth's Interior," Dr. L. V. King states that, "the pressure at any point of the earth's crust may be roughly represented by the weight of a column of rock of that depth." (Jour. Geol., vol. 20, No. 2, p. 136, February-March, 1912.) A different method of procedure is to be found in an article by Dr. P. G. Nutting on "The Deformation of Granular Solids." (Jour. Wash. Acad. of Scences, vol. 18, No. 5, pp. 123-26, March 4, 1928), and in the article by Hollis D. Hedberg on "The Effect of Gravitational Compaction on the Structure of Sedimentary Rocks." (Bull. Am. Assoc. Pet. Geologists, vol. 10, pp. 1,035-72, 1926. Discussion of same by Rubey and Hedberg, vol. 11, pp. 621-32; pp. 875-86; pp. 1,333-36, 1927.)

In answer to your second question, it would seen highly theoretical though not impossible to compute from a geological structure map how many pounds of pressure had been exerted on some of the beds due to folding, but it is probably safe to say that the necessary mathematical analysis has not yet been developed. A somewhat similar problem has been solved by G. H. Darwin in his paper, "On the Stresses Caused in the Interior of the Earth by the Weight of Continents and Mountains." (Trans. Royal Soc. London, vol. 173:1-2, pp. 187-230, 1882.)

Your question about the pressure required to force oil out of shale is not altogether clear. As you know, there are a great many wells in this country as at Salt Creek, Wyoming, that are producing oil and gas from shale at ordinary field pressures. The oil and gas evidently occurs in fissures in the shale. It would require extremely high pressures, however, to force oil out of the fine pores of the shale and into a well. Many investigators have contended that oil is displaced from shale by the capillary displacement of water and they have estimated the forces and pressure involved. You are referred especially to the writings of C. W. Washburne and A. W. McCoy.

If you refer to the generation of oil from organic matter in shales, you should communicate with A. W. McCoy of the Marland Oil Co., at Ponca City, Okla. He has conducted extensive experiments upon this problem. You should consider, of course, the heat that must be involved in any compression of shale by pressure and this in turn must depend largely upon the rate of compression and distortion by pressure.

GYP DEPOSITED FROM WATER

My company is having trouble with gyp depositing on working barrels, valve seats, tubing and casing. In some wells the tubing perforations get crusted over and plugged, and in a few bad cases we have had trouble pulling rod and tubing because of heavy gyp deposits both outside and inside the tubing. Can you advise me how to stop this trouble?

All of this so-called gyp is deposited from water. Gyp troubles as bad as those you describe are generally caused by different kinds of water getting mixed in the wells and reacting with each other chemically, so as to precipitate the mineral crusts called gyp. Top waters are probably leaking into your wells through casing leaks. This water should be shut off. If you can exclude water from your wells you will stop the formation of gyp.

CONING OF WATER

It is claimed that water in an oil sand will cone upward around a well thus shutting off the oil production. Is this possible? Why should water move upward around a well faster than the oil?—R. M. T.

Your question is answered fully in an article entitled "Water Control Problems Analyzed," in the September 20, 1928, issue of The Oil and Gas Journal.

READING GEOLOGICAL MAP

In your "Field Problems and Their Solution" I note that C. W. S. asks where he can get information on how to read a geological map. For the benefit of those using the kind of geological maps which we use in the oil business this subject is taken up in "Field Geology," by F. H. Lahee (published by McGraw-Hill Book Co., New York), in the chapter on modes of geologic illustrations. Possibly this might be of some assistance to your correspondent.—S. O. C.

HAS REPRESSURING PROBLEM

My company owns and operates 60 small producing wells which are from 1,500 to 2,000 feet deep. The production of these wells varies from 2 to 12 bbls. each.

My problem is to repressure the sands and cycle the gas. The key wells will have a pressure of 400 pounds. We use about 100 pounds pressure to start and flow these wells by automatic stage lift. It is a very simple matter to take gas out of the casingheads and pump it into the key wells. The problem becomes complicated, however, when we must have one compressor unit to put up 100 pounds to flow the wells, and another compressor unit built to give 400 pounds for the key wells. It appears quite evident that we must have gathering lines from all the casingheads to the key wells compressor. It is also clear that we must have a gathering system connecting all of the separators with the intake of one or both the high and low pressure compressor units.

If you can give me any information on the question of a plan to use to cycle the gas in such a manner as to have the intake of both compressor units properly supplied with gas at all times, I certainly would be very glad to have the information.—A. B.

It would seem to be advantageous to use a collection header that would give a constant pressure for the intakes of both the high and low pressure machines provided there is enough gas to fulfill the requirements. If there is not enough gas, it will be necessary to install a booster pump on the collection line to pull the gas into the system and maintain a constant pressure at the compressor intakes.

If the low-stage compressor is of sufficient capacity to compress the quantity of gas necessary for both operations, it will then be possible to run gas direct from the low-pressure compressor to the flowing wells and at the same time take off enough gas from this machine for the key wells and pass it through either a high stage on the same machine or through a separate high-pressure machine.

By using a low-pressure compressor of large enough capacity, it would be possible to install at little cost a small high-pressure machine that would easily take care of any volumes required for the key wells. This equipment would cost much less than two individually complete compressor units. Also by using this method with the large-capacity low-stage compression preceding the second-stage compression for the key wells, it would be possible to do away with the problem of supplying the intakes of two compressor units from a common source.

MIDDLE WEST GAS RESERVES

I would like to know where I can secure a map or a record showing the location and open flow of all proven natural gas reserves in the Middle West. If not the open flow, the locations will meet the requirements.

Will you please give me the addresses of the Oklahoma Pipe Line Co. and the Magnolia Pipe Line Co.?—T. J. M.

A map showing the natural gas fields of the United States is printed in the Natural Gas Industry number of The Oil and Gas Journal of June 16, 1927, in connection with an article by George Otis Smith.

The addresses for which you ask are: Oklahoma Pipe Line Co., Commercial Bank Building, Muskogee, Okla., and Magnolia Pipe Line Co., Magnolia Building, Dallas, Tex.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 50)

McLAIN COUNTY

Empire Oil & Ref. Co.'s No. 1 Bonner, SE cor. NW NW Sec. 29-5-3 ..... Location.

MUSKOGEE COUNTY

Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17 ..... Shut down 400 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18 ..... Shut down 2,290 ft.
J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 732 ft.

HUGHES COUNTY

Galt-Brown Oil Co.'s No. 1 Burrey, C NW NE Sec. 14-4-9. Dry and abandoned 4,101 ft.
Bauer and others' No. 1 Penn, NW cor. SW NE Sec. 1-8-10 ..... Drlg. 3,465 ft.
Noble Oil & Gas Co.'s No. 1 Wicket, SE cor. SE Sec. 20-6-9 ..... Dry and abandoned 3,015 ft.
E. W. Whitney and others' No. 1 Moore, SE cor. SW Sec. 17-5-9 ..... Drlg. 2,420 ft.
Pure Oil Co.'s No. 1 Fixico, NE cor. SW Sec. 18-8-9 ..... Drlg. 4,195 ft.
Howard Petroleum Co.'s No. 1 Gilbert, NW cor. SE Sec. 25-8-10 ..... Drlg. 3,240 ft.
Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW Sec. 21-6-8 ..... Sand 3,310-30 ft., corrected, hole full water.
T. B. Slick, Inc.'s, No. 1 Epperly, NW cor. NE NW Sec. 32-6-8 ..... Dry in Wilcox, 4,655 ft., plugging back.

OKLAHOMA COUNTY

Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w.. Shut down 4,510 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Shut down 7,001 ft.
Cromwell & Franklin's No. 1 Gross, SW cor. NE SW Sec. 22-10-2w ..... Dry and abandoned 4,702 ft.
Indian Terr. Ill. Oil Co.'s No. 1 fee, C SE SE Sec. 24-11-3w ..... Drlg. 6,120 ft.

OKFUSKEE COUNTY

Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.
Dixie Oil Co.'s No. 1 Drew, NE cor. SW Sec. 8-13-10 .... Shut down 2,815 ft.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-12-20 ..... Shut down 440 ft.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 635 ft.

PAWNEE COUNTY

Washoma Oil Co. and others' No. 1 Buffalo, SE cor. NE Sec. 33-22-5 ..... Cleaning out 3,194 ft.

POTTAWATOMIE COUNTY

Phillips-Atlantic's No. 1 Winrow, SW cor. NE NE Sec. 11-9-4 ..... Drlg. 2,603 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Rigging up rotary.
Roxana Pet. Corp.'s No. 1 Lowe, SW cor. NW NE Sec. 17-6-5 ..... Cleaning out 4,920 ft.
Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE Sec. 18-8-5.. Simpson sand 4,098-4,115 ft.; completed, pinched in.
T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3.. Rigging rotary.
Roxana Pet. Corp.'s No. 1 Deister, NW cor. SE NE Sec. 20-6-5 ..... Dry and abandoned 4,271 ft.
T. B. Slick and Roxana Pet. Corp.'s No. 1 Hurst, SE cor. NW NW Sec. 17-7-2 ..... Drlg. 5,365 ft.
Tomlinson et al's No. 1 Whisenhurst, NW cor. NE SE Sec. 35-7-5 ..... Drlg. 4,022 ft.
Phillips Petroleum Co.'s No. 1 Parman, SE cor. SW Sec. 15-8-4 ..... Drlg. 4,260 ft., corrected.
Champlin Refining Co.'s No. 1 Foster, SW cor. NE SW Sec. 14-7-5 ..... Drlg. 3,090 ft.

CADDO COUNTY

Magnolia Petroleum Co.'s No. 1 Shelby, SW cor. SW Sec. 28-10-12w ..... Shut down 4,472 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w.. Shut down 150 ft.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 22-6-10w ..... Rigged up and shut down.
Red Bank Oil Co.'s No. 1 Shanklin, C NW Sec. 15-12-11w. Running casing 4,530 ft.

OSAGE COUNTY

Amerada Pet. Corp.'s No. 1, NE cor. SW Sec. 25-25-6.... Dry and abandoned 2,925 ft.
White Eagle Oil & Ref. Co.'s No. 1, SE cor. NE Sec. 25-26-6 ..... Rig.

STEPHENS COUNTY

Wade-Martin & Smythe's No. 1 Vestal, NE cor. SE Sec. 20-2-5w ..... Dry and abandoned 2,510 ft.
Stahl & Burris' No. 1 Jefferson, SE cor. NE NW Sec. 2-1-7w ..... Drlg. 1,510 ft.

SEMINOLE COUNTY

Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 21-10-7. Fishing 3,350 ft.
Superior and Fuhrman's No. 1 Fay, NW cor. SE SW Sec. 27-11-6 ..... Drlg. 4,425 ft., corrected.
Magnolia Pet. Co.'s No. 1 Germany, SE cor. NW Sec. 30-9-5 ..... Drlg. 4,159 ft., show oil and water.
Phillips Pet. Co.'s No. 1 Miller, NW cor. SW Sec. 34-11-7 ..... Drilling 2,000 ft.
Burke-Greis Oil Co.'s No. 1 Cyrus, SE cor. NE NW Sec. 13-9-7 ..... Drlg. 2,260 ft.
Harris and others' No. 1 Stidham, SE cor. NW Sec. 30-9-8 ..... Underreaming 3,725 ft.
T. B. Slick's No. 1 Wood, NE cor. NE SW Sec. 26-7-6.... Cromwell sand 3,314-20 ft., flowing 1,000 bbls.
C. B. Shaffer's No. 1 Carolina, SE cor. SW NE Sec. 4-6-7. Drlg. 4,702 ft.
E. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Plugged back 4,325 ft., and shut down.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... Drlg. 3,000 ft.
Shaffer Oil & Ref. Co.'s No. 1 Catchochee, SW cor. SW NE Sec. 18-10-7 ..... Wilcox 4,705-10 ft. hole; hole full water; plugging back to Cromwell sand, and set 5-inch casing 3,730 ft.
Prairie Oil & Gas Co.'s No. 1 Rogers, SE cor. NE SE Sec. 14-10-6 ..... Dry and abandoned 4,729 ft.
T. W. Adkins' No. 1 Reed, NE cor. NW Sec. 2-8-8..... Spudded.
T. B. Slick, Inc.'s, No. 1 Tiger, NW cor. SW NE, Sec. 13-8-5 ..... Drlg. 1,650 ft.
Magnolia Petroleum Co.'s No. 1 Sissy, SW cor. NE Sec. 33-8-7 ..... Drlg. 4,016 ft.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Spudded.
Empire Gas & Fuel Co.'s No. 1 Harjo, SW cor. NW SE Sec. 17-7-6 ..... Rigging tools 4,318 ft.
Marland Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 5-10-7 ..... Rigging up.
Magnolia Pet. Co.'s No. 1 Carroll, SW cor. NW SE Sec. 1-7-5 ..... Location.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show o foil 1,235 ft.; shut down.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rig.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. NW Sec. 17-1-2 .. Drlg. 1,450.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w ..... Fishing 4,345 ft.
Don Sifers' No. 1 Jordan, SW cor. NW Sec. 16-16-17w .. Spudded and shut down.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ..... Shut down 3,460 ft.
Martin and others' No. 1 Clack, NW cor. SE Sec. 1-8-25w. Casing 1,085 ft.
L. C. Hiwicks' No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Drlg. 2,575 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w ..... Location.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ..... Shut down 1,500 ft.

Unnecessary-Eliminate It!

Per Cent of Fires Due to Each Cause.

Cause—	Per cent
Failure of auto shut-off valve	20
Loose connections and leaky piping	**15**
Defective oil burner	11
Back fires	12
Carbonization	7
Absence of or extinguishment of pilot light	6
Miscellaneous	6
Careless operation	4
Absence of auto shut-off valve	4
Imperfect combustion	4
Unknown	3
Dirty flues	3
Electric short circuit	3
Overheated furnaces and flues	2

—OIL & GAS JOURNAL
Aug. 2, 1928

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Day Oil Co.'s No. 1 Ault, NW cor. NW Sec. 35-8-21w ... Drlg. 450 ft.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ... Shut down 720 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w ... Spudded and shut down.
J. M. Henry and others' No. 1 Abrham, SE cor. NW Sec. 4-5-8w ... Rig.
Commerce Development Co.'s No. 1 Taylor, C NE NW Sec. 4-3-7w ... Testing sand 2,410-21 ft.
J. B. Nichols' No. 1 Brake, SE cor. NE SE Sec. 7-5-7w ... Shut down 2,307 ft.

McINTOSH COUNTY

Marlone Oil Co.'s No. 1 Sanders, NW cor. NE SW Sec. 10-9-18 ... Shut down 2,387 ft., corrected.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ... Shut down 5,451 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ... Rig on ground.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15--1w ... Shut down 3,130 ft.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w ... Shut down 530 ft.
Sloan-Russell's No. 1 Rushton, NE cor. SW SE Sec. 6-5-14w ... Spudded.
J. M. Burke's No. 1 Fox, SW cor. NW Sec. 4-6-16w ... Drlg. 875 ft.
Johnson & McDowell's No. 1 Thompson, SW cor. NE Sec. 6-6-15w ... Shut down 1,725 ft.
Dave Malernee's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w ... Shut down 858 ft. in granite.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ... Shut down 1,127 ft.

CUSTER COUNTY

W. E. Witts' No. 1 Wellman, C SE Sec. 1-14-14w ... Rig and tools.

PONTOTOC COUNTY

Moore & Curran's No. 1 Allen, SE cor. SW SW Sec. 23-5-5 ... Shut down 1,460 ft.
C. J. Shervin and others' No. 1 Wright, NW NE NE Sec. 13-4-6 ... Wilcox corrected 3,565-70 ft., dry and abandoned.
Roxana Pet. Corp.'s No. 1 Folsom, NW cor. SW Sec. 20-4-4 ... Drlg. 875 ft.
Boles and others' No. 1 Rayburn, SW SE Sec. 35-4-6 ... Lost underreamer; abandoned at 1,340 ft.
Texas Pacific Coal & Oil Co.'s No. 1 Stewart, C SW NE Sec. 11-5-8 ... Preparing to test Wilcox 3,435 ft.
American Oil Refining Co.'s No. 1 Jones, NE cor. NE Sec. 18-5-5 ... Drlg. 1,900 ft.

GARVIN COUNTY

R. F. Garland's No. 1 Strickland, SW NW SW Sec. 10-4-3 ... Drlg. 3,264 ft.
Dixie Oil Co.'s No. 1 Perkins, SE NW Sec. 15-4-1 ... Dry and abandoned 5,455 ft.

COMANCHE COUNTY

Jolly-Ogg Oil Co.'s No. 1 Neeley, SE NE Sec. 24-3-10w ... Dry and abandoned 3,014 ft.
Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w ... Drlg. 3,988 ft.
Wirt Franklin Pet. Co.'s No. 2 Holler, NW cor. NW Sec. 2-4-11w ... Drlg. 1,350 ft.

COAL COUNTY

McGraw and others' No. 1 Patton, SW SE NE Sec. 35-1-8 ... Wilcox 4,770-93 ft., dry, plugging back to show oil 1,790 ft.
Indian Territory Illuminating Oil Co.'s No. 1 Harris, SW cor. NW Sec. 10-1-11 ... Drlg. 4,660 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9 ... Shut down 1,595 ft.

PITTSBURG COUNTY

McAylor and others' No. 1 Reed, NW cor. SW NW Sec. 7-6-14 ... Drlg. 920 ft.

JACKSON COUNTY

Atlus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ... Shut down 735 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ... Shut down 1,425 ft.

MURRAY COUNTY

Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down.

COTTON COUNTY

Cuyler & Pyson's No. 1 Thomas, SE cor. SE SW Sec. 16-4-12w ... Drlg. 1,685 ft.
G. E. Crane and others' No. 1 Montgomery, C NW NE Sec. 33-2s-9w ... Shut down 3,516 ft.

JEFFERSON COUNTY

Fritz and others' No. 1 Barrett, C SE SE Sec. 5-65-7w ... Drlg. 1,736 ft.
Amerada Petroleum Corp.'s No. 1 Emerson, NW cor. SE SW Sec. 28-5s-8w ... Shut down 4,516 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6-19 ... Shut down 1,346 ft.

TILMAN COUNTY

Bray and others' No. 1 Barker, NE cor. SW NW Sec. 9-1-15w ... Shut down 805 ft.
Dixie Oil Co.'s No. 1 McKinney, NE cor. NE Sec. 29-3s-18w ... Location.
A. N. Pearson's No. 1 Mounts, SW cor. SW Sec. 3-5s-15w ... Corrected; drlg. 1,845 ft.
Stanley & McGregor's No. 1 Mock, NW cor. NW SW Sec. 33-1-20w ... Shut down 1,641 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ... Shut down 2,485 ft.

JOHNSTON COUNTY

Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 ... Shut down 1,530 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ... Shut down for casing 405 ft.
Smith & Kinsley's No. 1 Lane, SE cor. NW Sec. 29-1-7. Drlg. 1,080 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ... Location.
Sullivan and others' No. 1 Wines, NW NE NW Sec. 11-7s-5e ... Drlg. 375 ft.
E. J. Stump and others' No. 1 McGinnis, SW Sec. 28-3s-8w ... Rig.
McCraw and others' No. 1 Trust, SW Sec. 12-1s-8e ... Rig.

KANSAS WILDCATS

(Continued from Page 52)

EDWARDS COUNTY

Amerada & Wilcox' No. 1 Teansil, C NW SW Sec. 32-25-19w ... Underreaming 3,318 ft.

GEARY COUNTY

Pioneer Oil Co.'s No. 1 Chase, SE cor. SE Sec. 10-12-7. ... Drlg. 3,503 ft.
Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5. ... Drlg. 1,074 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w ... Drlg. 2,450 ft.

GREENWOOD COUNTY

Bisagno et al's No. 1 Gilroy, NW cor. SW SW Sec. 8-25-13 ... Dry and abandoned 1,642 ft.
P. H. Ballew's No. 1 Bright, NE cor. SW Sec. 22-27-12. ... Shut down 1,210 ft.
Ladow Gas Co.'s No. 1 Lawrence, SE cor. SW SE Sec. 4-27-13 ... Dry and abandoned 1,630 ft.
Ward McGinnis' No. 1 Robbins, NE cor. NW Sec. 16-24-9. Dry and abandoned 2,555 ft.
Hanley et al's No. 1 Peterson, NW cor. NE SE Sec. 4-26-13 ... 1,000,000 ft. gas, 1,528-81 ft.; completed.

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w ... Fighting cave 5,360 ft.

HARVEY COUNTY

R. S. Austin's No. 1 Nieman, SW cor. SW Sec. 21-24-2. ... Drlg. 2,240 ft.

JEFFERSON COUNTY

Wichita Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 ... Bigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 ... Shut down 940 ft.

LANE COUNTY

Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w ... Rig.

LYON COUNTY

T. K. Simmon's No. 1 Milner, SE cor. NW Sec. 35-21-11..Drlg. 1,835 ft.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE cor. NW Sec. 10-3-7 .....Drlg. 620 ft.

MARION COUNTY

Prairie O. & G. Co.'s No. 1 Theis, NW cor. NW Sec. 15-19-4 .....Dry and abandoned 2,715 ft.
Empire Oil & Ref. Co.'s No. 1 Burhart, SE cor. NE NE Sec. 11-20-3 .....Drlg. 800 ft.
J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 .....Rig.
Empire Oil & Ref. Co.'s No. 1 Jenson, SE cor. NW Sec. 26-22-5 .....Rig.
Courtney B. Davis' No. 1 Rampel, SE cor. NE SE Sec. 7-19-3 .....Chat 2,424-52 ft.; spray oil and 8,000,000 ft. gas.
A. E. Meyers, No. 1 Papp, SW cor. SW NE Sec. 10-18-2..Spudded.
Raymond Gear's No. 1 Larson, NW cor. SW NW Sec. 18-21-4 .....Shut down 2,330 ft., corrected.
Empire Oil & Ref. Co.'s No. 1 Siebert, SW cor. SE Sec. 28-20-2 .....Sand 2,425-27 ft., 1,500,000 ft gas, shut in.

MEADE COUNTY

Blackwell O. & G. Co.'s No. 1 Beyer, SE cor. NW SE Sec. 9-33-28w .....500,000 ft. gas and 2 bailers water total depth 4,366 ft.

MITCHELL COUNTY

Ben Gurley et al's No. 1 Crombil, C NE NE Sec. 32-9-7w .....Drlg. 3,575 ft.

MORRIS COUNTY

Hugh Faulder's No. 1 Wendt, SW cor. SE SE Sec. 18-15-5 .....Spudded.
Loomis & Anderson's No. 1 Young, NW cor. SE, Sec. 14-17-7 .....Drlg. 1,730 ft.
Skelton et al's No. 1 Iles, NW cor. NW Sec. 25-16-5....Rig.
General Utilities Co.'s No. 1 Sanford, NE cor. NE Sec. 15-16-7 .....Drlg. 1,425 ft.
O'Day et al's No. 1 Scott, NE cor. SW Sec. 6-16-6 .....Rig.

McPHERSON COUNTY

Galt-Brown's No. 1 Blaine, C NE Sec. 18-17-1w .....Drlg. 3,362 ft.
Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w .....Drlg. 520 ft.
Lariaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w...Rig.
McPherson Gas Co.'s No. 1 Stein, SW cor. NE SW Sec. 17-18-1w .....Underreaming 1,692 ft.
McPherson Gas Co.'s No. 1 Gustafson, C NE Sec. 9-17-2w .....Drlg. 2,500 ft.
W. C. Newman's No. 1 Diepenbrock, NW cor. NE Sec. 2-17-1w .....Drlg. 2,865 ft.
McPherson Gas Co.'s No. 1 Wedell, C SW Sec. 12-20-2w .....Drlg. 650 ft.
Vickers Pet. Co.'s No. 1 Wedel, C SW Sec. 12-20-2w.....Rig.

OSAGE COUNTY

York State Oil Co.'s No. 1 Smith, SE cor. SW NW Sec. 18-18-15 .....Drlg. 1,655 ft.

OSBORNE COUNTY

T. C. Johnston's No. 1 Cooley, C NW NE Sec. 15-8-15w...Underreaming 3,225 ft.
L. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w...Spudded and shut down.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w..Drlg. 2,750 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w..Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonian Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w .....Drlg. 2,340 ft.

RENO COUNTY

Empire and Marland's No. 1 Williams, SE cor. NE Sec. 5-26-4w .....Dry and abandoned 4,144 ft.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w .....Cellar.

ROOKS COUNTY

Phillips Pet. Co.'s No. 1 Overholtzer, C SE Sec. 30-9-16w..Drlg. 3,620 ft.
Empire G. & F. Co.'s No. 1 Woodrill, NE cor. SE NW Sec. 15-8-18w .....Drlg. 3,116 ft.
Krueger et al's No. 1 Poore, NE cor. NE Sec. 14-8-16w...Drlg. 1,911 ft.
Burford & Brimm's No. 1 Toxa, NE cor. SW SE Sec. 22-19-17w .....Spudded and shut down.
Krueger et al's No. 1 Poore, NE cor. NE Sec. 14-8-16w..Drlg. 2,730 ft.
Skelly & Mid-West's No. 1 Jones, SW cor. NE NW Sec. 28-7-16w .....Shut down 3,485 ft.

RUSH COUNTY

Danciger Valerius & Chenney's No. 1 Schuerman, NW cor. SE NW Sec. 27-17-17w .....Drlg. 3,575 ft., 5,000,000 ft. gas.
Sinclair Oil & Gas Co.'s No. 1 Berching, NW cor. NE NW Sec. 9-16-16w .....Drlg. 1,300 ft.

RUSSELL COUNTY

Douglas Oil Co.'s No. 1 Stoppel, SE cor. SW NE Sec. 25-14-11w .....Dry and abandoned 3,505 ft.
Gypsy Oil Co.'s No. 1 Cook, C NE SE Sec. 10-13-15w ....Dry and abandoned 3,448 ft.
Stearns & Streeter's No. 1 Haise, NE cor. SE SE Sec. 36-12-15w .....Shut down top Oswalt lime 2,974 ft.
Joe Liggett's No. 1 Maier, SE cor. NE SE Sec. 8-11-15w..Top Oswalt 3,016 ft.; show oil and water drlg. 3,280 ft.

SALINE COUNTY

M. Esty et al's No. 1 Peterson, C NE Sec. 6-16-5w.....Spudded and shut down.
Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w.....Drlg. 1,800 ft.
Nathan Jones et al's No. 1 Robertson, NW cor. SW Sec. 27-14-2w .....Shut down 1,500 ft.

SEDGWICK COUNTY

Bu-Vi-Bar Pet. Co.'s No. 1 Wright, SE NE SE Sec. 12-26-1w .....Sand 3,367-68 ft., flowing 1,700 bbls. daily.
Bu-Vi-Bar et al's No. 1 Roberts, SE cor. SW Sec. 1-26-2w .....Rig.
Lewis et al's No. 1 Taylor, NW cor. NE Sec. 23-27-2 ....Rig.
J. H. Tatlock et al's No. 1 Goeldner, NW cor. NE Sec. 6-29-2e .....Drlg. 1,640 ft.
La Robb Oil Co.'s No. 1 Davis, SE cor. SE Sec. 36-25-1w..Drlg. 1,350 ft.
Maglason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w..Shut down 250 ft.
Barnsdall Oil Co.'s No. 1 Faber, SW cor. NW Sec. 6-27-1w .....Drlg. 1,500 ft.
Bu-Vi-Bar Pet. Co.'s No. 1 Steel, SE cor. SE Sec. 1-26-2w..Drlg. 650 ft.
Connell & Slick's No. 1 Cross, NE cor. NE Sec. 27-25-1w..Spudded.
Allison & Fitzwilliams' No. 1 Doane, NE cor. NW NE Sec. 24-26-1w .....Drlg. 3,260 ft.
VanZant & Mason's No. 1 Fox, C NW SW Sec. 19-25-1w..Drlg. 1,200 ft.
Barnsdall Oil Co.'s No. 1 Samuels, NE cor. NW Sec. 24-25-1 .....Drlg. 1,328 ft.
Marland Prod. Co.'s No. 1 Goodrich, SW cor. NE SW Sec. 16-25-1 .....Rig.

SEWARD COUNTY

W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-33w .....Shut down 1,213 ft.
McKanna et al's No. 1 Haun, SE cor. NE Sec. 10-33-33w..Shut down 1,440 ft.
T. B. Slick's No. 1 Pyle, NE cor. NE Sec. 14-33-33w....Shut down 5,005 ft.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 27-7-40w .....Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson C NE SW Sec. 3-35-38w..Casing trouble 600 ft.

SUMNER COUNTY

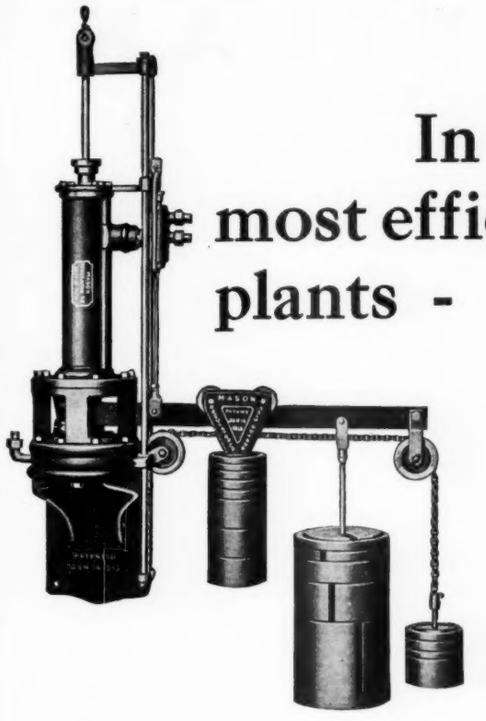
McCulloch Oil Co.'s No. 1 Teetile, SW cor. NE Sec. 29-34-1w .....Drlg. 3,050 ft.
Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w .....Drlg. 3,712, hole full water.
Helmerich & Paynes' No. 1 Warlick, SE cor. NE Sec. 8-34-2 .....Drlg. 2,625 ft.
Otstot et al's No. 1 Barlow, SE cor. SE Sec. 22-33-3w...Wilcox 4,479-4,482 ft., show oil and gas.
George Dickey's No. 1 Knox, SW cor. NE Sec. 3-35-1w...Drlg. 3,632 ft.
Otstot et al's No. 1 Volker, NW cor. NE Sec. 9-35-1.....Rig.
Davidson and others' No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.
Sam Jarvis' No. 1 Warnecke, SE cor. SW Sec. 4-34-3w...Dry and abandoned 4,686½ ft.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w .....Drlg. 2,125 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3..Rig.



In the most efficient plants - - -

the Mason Automatic Damper Regulator is fast replacing the old method of hand control and is saving thousands of dollars worth of fuel by increasing combustion efficiency.

The regulator is automatic, accurate and dependable and maintains the correct draft in the boiler at all times and under all conditions.

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NEILAN

SENSITIVE LOW PRESSURE REDUCING GAS REGULATOR NO. 15

Inlet Pressures up to 20 lbs.

Outlet Pressures 2 ozs. to 12 ozs.

The Neilan Gas Regulator has many outstanding features, but it is in actual field service that the full value and importance of these exclusive features are most apparent.

Sensitive regulation—that gives steady, uniform control of the outlet pressure regardless of flow conditions.

Full pipe capacity—free passage of the gas is permitted by large valve ports and clearances. It will pass full capacity of the inlet pipe.

Multiple springs—provide greater flexibility so that the valve automatically adjusts itself to changes in volume with practically no variation in outlet pressure.

Large diaphragms—made possible by multiple springs—provide greater power for operating the regulator. This increased power prevents chattering, gives more positive operation, overcomes inertia and friction, and gives more sensitive and accurate regulation.

Frictionless operation—is made possible by the elimination of stuffing boxes, large friction surfaces and dash pots. Stem and guide bushings are of stainless steel and will not corrode or stick.

Does not chatter—the air cock on the spring barrel can be throttled to cushion the operation of the regulator—a frictionless method of cushioning.

Non-corrosive construction—cast iron valve bodies, valve seat and valve plugs; and stainless steel stems and stuffing box nuts; resist the corrosive action of sulphur compounds.

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"You Can Be Sure of Neilan Products"

CENTRAL WEST

(Continued from Page 70)

tion among operators. The Wood Oil Co. is working on the Mattox farm and Doctor Sirman on the Nancy Farmer farm.

Jim Thomas, general manager of the James E. Ellis, oil interests in the Taffey and will no doubt continue until extreme cold weather prevails. The week shows a total of 26 completions, 8 dry holes, 10 gas wells, 7 oil wells with an initial production of 206 bbls., 5 new locations staked out and 26 new wells started spudding.

In Ashland County, Perry Township, Robison and others' No. 6 on the W. E. Strine farm, Section 20, Perry Township, about 3 miles north of Jeromeville, is a second Berea sand producer reported good for 15 bbls. Curis and others' No. 4 on the Eliz. Devault 78 acres, in the S half of SW Section 20, is also a 15-bbl. producer from the same sand. The old well drilled some years ago on the Judson Wise 123 acres lies to the north of the Devault farm, and has two gas wells and four oil producers, while the Isaac Gorman 30 acres, just south of the Wise farm, has five producing oil wells. There is a large area of Berea sand territory yet to develop in that part of Perry Township. The upper Berea failed to produce anything of great value some years ago, and now that the lower Berea has been found productive more or less development work will go along for a long period. The Devault well is about 3 miles north and nearly a mile west of what is known as the McFadden Pool, where Anson Henry Russell of Cleveland, Ohio, found good pay in the second Berea sand. In Orange Township, same county, the Kemrow company brought in a fairly good gas well at a test on the John T. Fluke, Section 14, about 2 miles northeast of the town of Orange and about the same distance west of the town of Polk. The Logan Gas Co. drilled a dry hole in No. 1-3038 on the M. Johnson, not far from the Fluke gas well, to the southwest. In Vermillion Township the Kemrow company got a duster at No. 3 on the Leo Hawks, Section 14. In Miflin Township, same county, Hendershot and others drilled two dry holes in Nos. 4 and 5 on the William Goard, Section 12.

Medina County

In Medina County, Chatham Township, the Oko Oil & Gas Co. of Lima, Ohio, drilled in a 2-bbl. pumper in No. 17 on the G. W. Brinker, Lot 6. In Liverpool Township, Cushing and Hulse have a duster in a test on the W. E. Wolf farm, Lot 7, a mile or so southeast of Marysville and about the same distance northeast of the hamlet of Liverpool. In Montville Township, the Ohio Fuel Gas Co.'s No. 1-3277 on the William E. Shook, Lot 21, is also a dry hole. Same company is drilling a test on the L. G. Collister, Lot 25, Hinckley Township.

No completions were reported from Wayne County, but the Logan County Gas Co. is drilling No. 1-3036 on the O. and I. Santmyer, Section 17, Sugar Creek Township. Harmon and George of Mansfield, Ohio, are drilling No. 2 on the W. N. Hileman, Section 17, Chester Township, and have made a location for a test on the Doctor Biddle, Section 7, Congress Township, also drilling No. 2 on the K. W. Taylor, Section 5.

In Holmes County, Knox Township, William Barker's No. 3 on the Daniel Mosher farm, struck a gas pay at from 782 to 796 feet and the second pay from 803 to 845 feet, the well doing a little better than 500,000 feet of gas. East Ohio Gas Co. made a location for a test on the L. M. Neal, Section 15, Richland Township. Ohio Fuel Gas Co. is cleaning out No. 1-3031 on the Cora Smith, Section 5, Prairie Township.

In Knox County, Howard Township, the Ohio Fuel Gas Co.'s No. 1-3272 on the Mary A. Durbin, Section 7, is a fair gas producer from a depth of from 2,817 to 2,832 feet. Same company is drilling No. 2-3333 on the James A. Greer, Section 9. The Preston Oil Co. is drilling a test on the Joseph Beatty, Section 2, Jackson Township.

Summitt County

In Summitt County, Franklin Township, F. A. Brendall and others are drilling deeper their second test on the Isaac Hose, Section 27, and the East Ohio Gas Co. made a location for a test on the Luna Lake Club, Section 33, also a location for a test on the Mary Kertesz, Section 26. Same company is drilling a second test on the Atha Development Co. property, Section 8, Richfield Township. In Spring Township, same county, Zindel and others made a location for a test on the Chenowith land, Section 5.

In Licking County, Perry Township, the Whitehill Gas Co.'s No. 5 Albert Ashcraft farm, Section 2, pumped 8 bbls. from 611 to 624 feet. H. C. Farmer's No. 1 on a part of the Albert Ashcraft, same section, pumped 5 bbls. at from 707 to 722 feet. Koontz & Shulty are drilling No. 5 Joseph Chaney, Section 1, and made a location for a test on the Jerry Cullison, Section 2. Preston Oil Co. is drilling No. 8 on the James Wright, Section 16. In Hopewell Township, the Pure Oil Co.'s second test on the J. R. Eastworthy, Section 1, is credited with an initial production of 30 bbls. In Hanover Township, the Everette Gas Co. is drilling No. 10 Felix Claypool, Section 20. In Licking Township, the Heisey Gas Co. is drilling a second test on the William Wallace. In Bowling Green Township, the Preston Oil Co.'s No. 1-1240 on the J. H. Coonrider, Section 14, is a duster. This well got the Clinton lime from 2,841 to 2,858 feet; the Medina sand at 2,913 feet and went to a total of 2,917 feet. Same company made a location for a test on the Waylen Ashcraft, Section 11, Fallsburg Township.

Ohio Fuel Gas Co made a location for No. 1-2255 on the E. E. White, Section 34, Rich Hill Township, Muskingum County.

In Athens County, Ames Township, the Ohio Fuel Gas Co.'s No. 1-3291 on the B. M. Carpenter, Fractional Section 2, is an average gas well in the Second Berea sand at from 1,403 to 1,428 feet and drilled to a depth of 1,434 feet. Kiggins and others have a light gas well at a test on the John T. Fleming, Section 3, also in the same sand at from 1,397 to 1,418, total depth 1,428 feet. Same parties are drilling a test on the Ames Limscott, Section 3. Orndorf and others No. 6 on the Roena Dean, Section 3, got a light gas producer in the Second Berea sand from 1,414 to 1,429 feet and went to a total depth of 1,444 feet. Fox and Mosure are drilling No. 1 F. E. Phillips, Section 13. In Carthage Township, the Fairfield Gas Co. has an average gasser at No. 4 on the N. R. Watkins Fractional Section 3, at 1,310 feet. Ohio Fuel Gas Co. is drilling No. 4-3047 on the Lulu M. Tedrow, in Fractional Section 23.

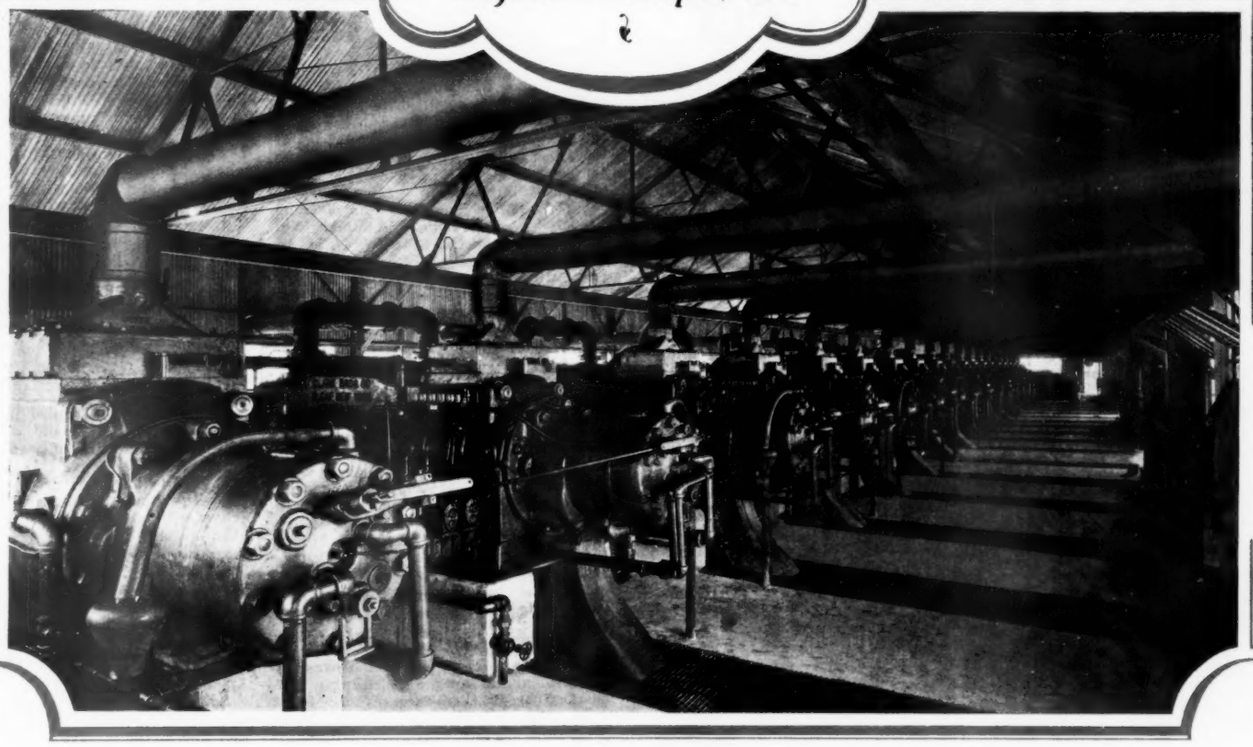
In Berne Township, Athens County, Smith & Thomas' No. 5 on the C. C. Curtis, Section 33, pumped but 1 bbl. from the First Cow Run sand at from 145 to 180 feet. Bailey Oil Co.'s No. 1 on the W. C. Wells, Section 29, is a light gasser from the lower Berea sand from 1,411 to 1,433 feet and drilled down to 1,441 feet. In Lodi Township, Stewart and Ross are drilling a second test on the L. H. Blackwood, Section 1. In Athens Township, Gross and others are drilling No. 9 on the Athens State Hospital land, Section 15, and No. 1 on the Herman R. Graves, Section 19. In Berne Township, the Ohio Fuel Gas Co. is drilling No. 2-3336 on the P. H. Walker, Section 35, and made a location for No. 1-3342 on the E. R. Galloway, Section 17. McBride and others are drilling No. 1 L. W. Wright farm, same township.

Meigs County

In Meigs County, Sutton Township, Tyree and others failed to find a commercial pay in the first Cow Run sand at from 562½ to 583½ feet and drilled to a total depth of 589½ feet. The Pure Oil Co. is drilling No. 3 on the Henry C. Klein farm. In Olive Township, the Wehrle Oil & Gas Co. has a light gasser well at a test on the John Devlin, Section 20, from the first Berea sand at from 1,845 to 1,850 feet. Tyree and others are drilling a test on the Stanley Holter, Section 13, Salisbury Township, same county.

In Jackson County, Franklin Town

4,000 H.P. Installation of Double Acting Gas Engines – Pampa, Texas



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Operators familiar with the famous CLARK "Super 2" design also know the great savings in fuel effected by this construction. CLARK Engines using the "Super 2" principle use 1/3 less fuel than the best ordinary 2-cycle engines, because of better mixing, higher turbulence and no loss of gas into the exhaust during scavenging. The large scavenging air cylinder between the two power cylinders gives an amount of scavenging air that insures complete replacement of inert burnt gases by fresh cool air, thus affording greater overload capacity and greater efficiency. CLARK Super 2 Engines at least equal in efficiency the best 4-cycle engines.

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Today the Improved and Mightier TRIMO is on the job—living up to every claim we made for it—proving itself the strongest and safest wrench of its kind on the market.

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Trimont Mfg. Co., Inc.
ROXBURY (BOSTON), MASS.

ship, the Ohio Fuel Gas Co. has an average gas well at No. 1-3202 on the George D. Wood, Section 23. The gas was found in the Clinton lime at from 2,705 to 2,719 feet and a 3-foot pocket was drilled, making the total depth 2,721 feet. In Coal Township, same company is drilling No. 1-3218 on the George N. House, Section 3.

In Morgan County, Marion Township, the Kemrow company's No. 3 Charles Huffman, Section 29, drilled in as a fair gasser from the lower Berea sand at from 1,400 to 1,428 feet, total depth 1,432 feet. Same company's No. 3 Oscar Johnson, Section 23, found the same sand at from 1,390 to 1,416 feet, total depth 1,421 feet, and also an average gas producer. Bauman and others' No. 7 Florence Shuster, Section 1, is an average gas producer from the lower Berea, the pay being from 1,390 to 1,410 feet and drilled to a total depth of 1,430 feet. Another average gas well was brought in by the Bowman Oil & Gas Co. in No. 7 on the G. E. Hoffman, Section 26, showed a little better than 500,000 feet of gas at a total depth of 1,663 feet, the lower Berea being found at from 1,640 to 1,660 feet. Hollowell and others' No. 5 Rettie Syphers, Section 18, found the top of the same sand at 1,391 and bottom of sand at 1,415 and went to a total depth of 1,433 feet, getting a rather light gas producer. Bowman Oil & Gas Co. is drilling No. 2 on the Clyde and S. Spurrier, Section 26. Moran Oil & Gas Co. is drilling No. 2 Thomas Ball, same section, and Hollowell and others are drilling No. 1 on another part of the Thomas Ball farm, same section.

Scattered Development

In Gallia County, Addison Township, Holstead and Kenney are drilling a test on the John Brothers farm, Section 16.

In Fairfield County, Rush Creek Township, Perry Sturm is drilling a second test on the George O'Hare, Section 24.

In Guernsey County, Wheeling Township, Blackstone and others' No. 2 on the J. A. Alloway, Section 10, proved a fairly good gas producer, showing a natural flow of close around 1,000,000 feet. In this hole, the top of the Niagara lime was encountered at 3,370 feet; lime sand from 3,539 to 3,548 feet, and drilled to a total depth of 3,550 feet, with a slight showing of oil at 3,543 feet. Same parties are drilling a second test on the John Rallston heirs, Section 11. Ohio Fuel Gas Co. made a location for a test on the G. A. Dillon, Section 4, Cambridge Township, same county, also a location for No. 6 on the Cambridge company property, Section 3, Valley Township, same county.

In Belmont County, Richland Township, S. T. Rutherford's test on the C. W. Clark, Section 2, developed a dry hole in the Berea sand. A very slight showing of oil was found at 1,840 feet, but not enough for a commercial producer.

In Fallsburg Township, Licking County, the Margaret Oil Co.'s No. 3 on the Reuben Rinehart, Section 1, is a dry hole. Brown and others' No. 9 George Chapin, Section 10, is estimated at 7 bbls.

In Canaan Township, Athens County, C. F. Cox and others' test on the Lena Bean, Section 18, is showing for 3 bbls.

In Sutton Township, Meigs County, Tyree and others' No. 5 on the H. D. Carnahan farm, Section 11, drilled in a duster.

Ohio Fuel Supply Co. found a nice gas well at No. 1-3224 on the Amy Brown, Section 19, Harrison Township, Perry County, at a depth of from 3,647 to 3,686 feet.

Indiana

Quite a surprise was sprung when the important wildcat well drilling in the northeast corner of the Bennett Taylor 160-acre farm, in the SW of Section 17, Salem Township, Pulaski County, in the lower end of the Kankakee Valley, in western Indiana, and 1½ miles south and three-quarters of a mile west of Francisville, came in a fresh water well in the Trenton lime at close around 1,000 feet, the salt water being found in the Niagara lime, which lies some 400 feet above the Trenton. This indicates that in the early drilling in that area wells drilled years ago were not properly plugged, letting the water into a sand that would have probably made an excellent and economical field to operate. In the town of Francisville, on a church lot, is a well that always stands near the top with oil and others no doubt have been drilled in near-by areas that were never taken care of. In September J. F. Denney and others drilled a test on the Jasper County Co.'s property, in the SE SW of Section 5, Barkley Township, Jasper County, and about 14 miles north and west of the well just completed on the Bennett Taylor farm, which also came in with an ocean of salt water as well as fresh water. Undoubtedly the shallow natural lubricating wells on the Van Natta farm, in Section 33 and 34, Gillman Township, which were drilled around 30 years ago, contain more or less water, although oil is dipped out of the casing in many of the holes that still stand open at the casinghead. This shallow field is only a short distance east and a little north of the Denny water hole, but as no deep Trenton wells had been drilled in the latter area, none of them could be the cause of the large amount of water found in the Trenton and Niagara formations. Had the Bennett well proved a commercial oil producer it would have meant an active drilling campaign around Francisville, as the owners of the water well were ready to ship in several drilling machines and material for 50 or more holes. The owners of the Bennett well are arranging for the drilling of another well, but some distance away from the Kankakee Valley, in an entirely different locality, although in Indiana.

Gibson County

Smith and others' test, 600 feet from the south line and 150 feet from the east line of the J. McCarty farm, in the NW Section 13, Patoka Township, Gibson County, developed a dry hole at a total depth of 2,009 feet. In Washington Township, same county, the Ohio Oil Co. abandoned No. 3 on the Dora Edwards, in Section 1.

B. F. Smith and others drilled a test 1,020 feet from the south line and 300 feet from the west line of the David Wirtz farm, in the SE Section 4, Washington Township, Pike County, and about 3 miles southwest of Petersburg, and found a duster at a total depth of 1,545 feet.

Wiser Oil Co. is preparing to start a test on the Cord Dooley farm, in Lucr Township, Spencer County, which will make the third test the company was to drill on a large acreage. Same company is still at work on the Richardson farm, same township, and in the southern portion of the State.

No late report has been received of the condition of the wildcat being drilled by John G. McClurkin and others on the E. W. Jones farm, on Anderson River, southeast of the town of Birdseye, where Mr. McClurkin, who is a geologist, picked the location of the drilling well.

Illinois

Illinois is credited with three completions since the last review, two being dry and the other a fair gas well. The gas well was drilled by Edward Kerlin in his No. 2 well near the southeast corner of the M. O. Southers farm, in the NE Section 17, Honey Creek Township, Crawford County. The well is a fair gasser at a depth of 940 feet and, like the first well, will be shot in and made use of for fuel in further drilling operations.

In Oblong Township, same county, the Dinsmoor Oil Co.'s second test, 750 feet from the north line and 400 feet from the east line of the M. C. Stentz, in the NW SW Section 23, was dry at a depth of 1,002 feet.

I Lawrence County, Lawrence Township, the Ohio Oil Co. drilled a dry hole at No. 8 well, 150 feet from the south line and 550 feet from the east line of the D. B. Whittaker, in the SE Section 33. Same company abandoned No. 6 on the T. H. Seed, Section 10, same township, which was a producer from the well-known Kirkwood sand.

MUSKEGON FIELDS

(Continued from Page 59)

the Dundee formation. The Muskegon-Ottawa-Davis Oil Co.'s No. 1 Reeths, SW SW Section 4-10-16, has been cased and cemented above the Dundee and will be drilled in next week. The Joliet-Morris Development Co.'s No. 1 Kooi, SW NE Section 8-10-16, was casing at 2,010 feet. About 6,000,000 feet a day of gas from the lower Traverse formation was cased off with the heavy water struck at about 1,960 feet.

Wells Drilling

Three wells were drilling at or near 2,000 feet and will probably be completed next week: Shoup Oil & Gas Co.'s No. 3 Shoup, NW NW Section 8-10-16; Diamond Oil & Gas Co.'s No. 1 North Muskegon Development Co., SE NE Section 7-10-16, and the Consolidated Oil Co.'s No. 1 Plunkett, SE SE Section 8-10-16.

Four wells brought in as large producers are still installing gas separators and preparing to treat cut oil from the Dundee. They include the two record producers of 3,000 and 2,000 bbls. a day initial production, and two others which will make about 1,000 and 400 bbls.

Section Ten Oil & Gas Co.'s No. 1 McDermott, SW SW Section 10-10-16, which struck a streak of about 5 feet of pay sand at 801 feet, made 52 bbls. in the first 3 hours. In the next 24 hours it pumped 20 bbls. It is being drilled deeper, however, although the operators may return to this shallow pay with a number of shallow wells on their 40-acre lease.

C. M. Bowers' No. 1 Hower, SE SE Section 5-10-16, which came in as a 14,000,000-foot gasser in the Dundee is to be drilled into the oil.

Ten other wells are drilling above the upper Traverse pay at between 1,650 and 1,700 feet. Eight are spudding on locations previously announced. They are: Puritan Oil Co.'s No. 1 Burns, SE SE Section 5-10-16; Holland Oil & Gas Co.'s No. 1 Joslyn, NE SE Section 5-10-16; Reed Oil Co.'s No. 1 Hill, NE SE Section 8-10-16; Muskegon Oil Co.'s No. 1 Daniloff, NE NW Section 8-10-16; Dixie Oil Co.'s No. 2-D Dirkes, NW NE Section 9-10-16; Dixie Oil Co.'s No. 2-D Becker, SE SW Section 4-10-16; Johnson Oil Refining Co.'s No. 1 VanAllsburg, NE SE Section 5-10-16; and A. S. Cochran's No. 2 Taggart, SE SE Section 5-10-16.

New Locations

Two wells are spudding on new locations: Joliet-Morris Development Co.'s No. 1 Daniloff, SW SE Section 5-10-16; and the Holland Oil & Gas Co.'s No. 2 Joslyn, NE SE Section 5-10-16.

Two rigs are moving in on locations: Kelley Goldboss' No. 1 Giles, SE SW Section 6-10-16; and Puritan-Goldboss' No. 1 McLaughlin, SE SE Section 5-10-16.

Rigs also are moving in on three new locations: Victor Oil & Gas Co.'s No. 1 Collins, NE SE Section 5-10-16; Dixie Oil Co.'s No. 1-D Dow, NW SE Section 4-10-16; and the Muskegon Oil Corp.'s No. 4 H. Heinz, NE NE Section 8-10-16.

Seven wells are rigging up on locations previously announced: Reed Oil Co.'s No. 2 Torrent, SE SW Section 8-10-16; C. M. Bowers' No. 2 Hower, SE SE Section 5-10-16; Swastika Oil & Gas Co.'s No. 1 Berkema, SW NW Section 8-10-16; Balch & Balch's No. 2 Muskegon County, SW NW Section 8-10-16; Lake Shore Petroleum Co.'s No. A Heinz, NW SE Section 8-10-16; L. H. Morehead's No. 1 Lakey, NW SW Section 1-10-16; and Alma Oil Corp.'s No. 2 Haight, NE SE Section 9-10-16.

Three wells are rigging up on new locations for the Meeske Development Syndicate's No. 2 Drost, NE SE Section 5-10-16; Lake State Oil & Gas Co.'s No. 1 Cooley, SW NW Section 8-10-16; and E. L. Robinson's No. 1 Flentje, SE SE Section 9-10-16.

Ten more new locations were announced in addition to the eight listed as moving in, rigging or spudding: Muskegon-Ottawa-Davis Oil Cos.' No. 2 Becker, NW SE Section 4-10-16; Muskegon-Ottawa-Davis Oil Cos.' No. 2 Reeths, SW SW Section 4-10-16; McAfee-Refior No. 1 Bouwsma, SW NW Section 4-10-16; Dixie Oil Co.'s No. 3-D Becker, SE SW Section 4-10-16; Dixie Oil Co.'s No. 2-D Dow, NW SE Section 5-10-16; Section Ten Oil Syndicate's No. 1 Fagan, SE SW Section 10-10-16; Cedar Creek Oil & Gas Co.'s No. 2 Fagan, NW SW Section 10-10-16; Mitchell-White-Mezeroff's No. 1 Lewis, SW NW Section 7-10-16; Johnson Oil Refining Co.'s No. 2 VanAllsburg, NE SE Section 5-10-16; and the Johnson Oil Refining Co.'s No. 3 L. Heinz, SW NE Section 9-10-16.

Laketon Township

Completion of a second producing oil or gas well in Laketon Township in the Dundee formation is anticipated before the close of next week. Reed Oil Co.'s No. 1 Young, SE NE Section 11-10-17, is the probable producer. It has been cased in the break above the Dundee pay sands and will be drilled in next week. It is a direct offset to Carl Prather's No. 1 Thompson well, SW NW Section 12-10-17, which is now shut in as a 5,000,000-foot gasser.

Johnson Oil Refining Co.'s No. 1 Savacool, SW SE Section 2-10-17, is drilling at about 1,900 feet and may also be completed in the Dundee formation next week. The same company's No. 1 Adams, NW SE Section 9-10-17, is shut down at 1,725 feet waiting for fishing tools with which to remove a drill and a set of broken jars.

Maire-Caswell-Kidder's No. 1 Shuler well, NW NW Section 12-10-17, a direct north offset to the Prather well, also is drilling toward the Traverse.

Seven new wells are just getting under way: Nelson & Witt's No. 1 Andree, NW SE Section 12-10-17; C. M. Bowers and others' No. 1 Lee, SE NW Section 1-10-17; Murray Higgins and others' No. 1 Phelps, NW NE Section 1-10-17; Bark & Pack's No. 1 Fenner, NW SE Section 11-10-17; Buckeye Oil & Gas Co.'s No. 1 Van Loo, NW SW Section 2-10-17; Liberty Oil Co.'s No. 1 A. Metzke, SE NW Section 2-10-17; and the Hughette Oil Co.'s No. 1 Dick, NW SE Section 12-10-17.

The last is on a new location. Three other new locations announced this week make a total of 17 wells in this new area opened up by the Prather-Thompson well.

The new locations are: Lima Oil Corp.'s No. 1 Avery, SE cor. SW NE Section 1-10-17; Reed Oil Co.'s No. 2 Young, NW cor. SE NE Section 11-10-17; Reed Oil Co.'s No. 3 Young, SW cor. SE NE Section 11-10-17.

There are two previously announced locations on which no activity has been started: Ohio Oil & Gas Co.'s No. 1 Gates, NE NE Section 11-10-17; and D. W. McElhany and others' No. 1 Launste, SE SE Section 1-10-17.

Western Michigan Wildcats

Of six Western Michigan wildcats, four are shut down at varying depths and for various reasons. One is drilling and the sixth is rigging up.

The Lima Oil Corp.'s No. 1 Atwood, SE SW Section 6-10-13, Ashland Township, Newaygo County, is shut down at 930 feet. Paul Schulte Oil & Gas Co.'s No. 1 Blanchard, Section 31-10-10, Kent County, is shut down at 1,200 feet.

Spring Lake Oil Co.'s No. 1 Edward Voss, SW SE Section 14-8-16, Ottawa County, is shut down at about 300 feet. The Mid-Continent Development Co.'s No. 1 Easley, NW NW Section 19-6-11, Kent County, also is shut down at about 950 feet.

Edward DuVall's No. 2 Carrie Mears, SW NW Section 31-15-18, is drilling at about 410 feet and the Saukey-Beem No. 1 Beem, NW SE Section 22-14-15, Newfield Township, Oceans County, is building rig.

Muskegon County Wildcats

It has not yet been decided whether the S. B. Ridenour Syndicate's No. 1 Antisdale, SE SE Section 2-9-16, Norton Township, would be abandoned as dry at 2,150 feet or carried deeper. The well has been shut down at this depth for two weeks.

The Fink Development Syndicate is about ready to skid the rig and start a new hole for the No. 1 Nash, SW NW Section 20-9-14, Ravenna Township. A string of tools was lost in the hole this week while an effort was being made to drill by two previously lost bits.

Harper & Newman's No. 1 Cook, NE NE Section 2-9-16, Fruitport Township, is the only wildcat in Muskegon County that is making any progress.

The Shifting Sands Oil Syndicate's No. 1 well, SW NW Section 20-11-15, Cedar Creek Township, is rigging to drill.

Suit to Test State Law

A second suit to test the power of the State of Michigan under the present oil and gas law was started this week when a temporary injunction restraining the Meeske Development Syndicate from flowing its No. 1 Drost well, SE SE Section 5-10-16, was issued by Judge Leland W. Carr, of the Ingham County court, on the request of the State.

The new case will be tried November 16. The State said the well had been flowing from 4,000,000 to 5,000,000 feet of gas into the air to produce only 500 bbls. of oil. Records show that before it was shut in it was making 5,000,000 feet of gas and about 250 bbls. of oil.

In the case of Kelly Goldboss vs. the State of Michigan on the 5-acre drilling rule adopted by the State three judges will preside in Federal Court at Grand Rapids, November 26, when the suit brought by the operator restraining the State from interference with his operations will be heard. The question involves the constitutionality of the State law and three judges will preside, Judge Charles C. Simons, of Detroit; Judge Arthur Dennison, of the United States Court of Appeals, and Judge Fred M. Raymond, of the Western Michigan District Court, Grand Rapids.

State Land Leases

The Michigan Conservation Commission at the November meeting held this week deferred final action on the policy to be followed in the leasing of state oil, gas and mineral rights until December 7. It was indicated the State would stand pat on the decision to offer State lands for lease at auction to any operators seeking to purchase the leases. In the meantime all leases in which the lessee has not complied with the State oil law will be cancelled. Thirteen leases, mostly in Schoolcraft County, on 346,000 acres of State lands immediately will be cancelled under this order.

The State this week through J. C. Jetchum, of the State lands division of the conservation department, turned over the lease on 10 acres owned by Muskegon County as a site for the county tuberculosis sanitorium. The oil, gas and mineral rights on this 10 acres were reserved when the property was sold to the county, as in the sale of state lands. The State reserved a one-eighth royalty on the lease as it was turned over to the county this week. This necessitated the drawing of a new agreement between the county and Balch & Balch, Chicago operators, who have completed one 8,000,000-foot gas well on the north 10 acres of the sanatorium property and now seek to drill on the south 10 acres on which the State held the oil and gas rights.

It has been determined that the State can sell the oil and gas rights only on lands where it does not own the surface but has reserved the oil and gas rights.

Establishment of a field office and inauguration of an information and advisory field service within the next few days is planned by Beverly H. Tucker, new state oil and gas field inspector, who arrived in Muskegon this week. Mr. Tucker succeeds W. B. Berwald, of the Bartlesville station of the United States Bureau of Mines, who has been representing the State and Federal government in the Muskegon Field since R. R. Brandenthaler, also of the Bartlesville station, first came to the field to save it from ruinous drilling methods which threatened the life of the upper pay sands.

The new oil inspector will work under the geological survey division of the Michigan conservation department and in co-operation with federal authorities.

CANADIAN FIELDS

(Continued from Page 61)

oil. Oil indications were first met at 1,840 feet, and coring has since been carried on. In a sand 9 feet thick and about 6 feet below the cap rock a light green crude of considerably higher volatility than the heavy crudes of the Wainwright Field was reported. Casing has been run and cemented on top of the sand preparatory to drilling the well in. It will likely be brought into production early next week. The potential gas production is estimated at 20,000,000 feet a day. As soon as the well is finished, the outfit will be moved to a new location about 100 yards from No. 1 for a second test.

Sasko-Wainwright Oil & Gas Co.'s No. 1, LSD 1, Section 19-45-6w4, is standing cemented at 2,233 feet, and waiting for drill stem before drilling into the sand. Hargal Oils, Ltd., of Vancouver, B. C., which last summer took over most of the assets of British Petroleums, Ltd., has definitely located its No. 1 test in LSD 13, Section 2-45-7w4, and is working on derrick and moving in machinery. T. J. Sugars is field superintendent. The location is 2 miles west of Wainwright and fairly close to the Wainwell Oils' producer. A rotary outfit will be used. A Detroit syndicate has ordered a derrick for a test on the Lindseth farm southwest of Wainwright.

Wainwell Oils' No. 3, LSD 9, Section 36-33-7w4, rotary test is reported drilling below 500 feet. The contract calls for an expenditure of $21,000, with a further bonus of $100 a day to the contractors if they bring the well into production before December 15. Wainwell Oils' No. 2, LSD 15, Section 36-44-7w4, standard test, is running three tours and making good headway, the log at 1,230 feet closely approximating that of No. 1 producer.

Turner Valley

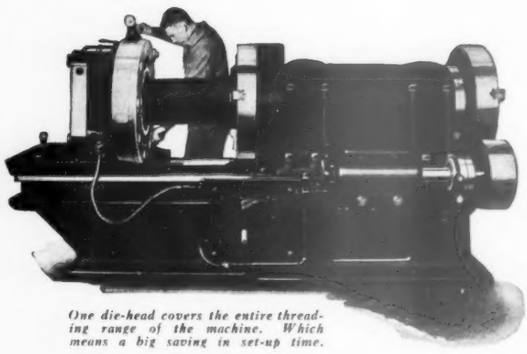
In the Turner Valley Field southwest of Calgary, several deep tests are nearing completion. Okalta Oils' No. 1, LSD 1, Section 1-20-3w5, is drilling below 5,000 feet, slightly more than 100 feet in the deep lime. Additional wet gas was met at 4,996 feet. The test will be drilled at least 75 feet below the top of the upper porous horizon, which will give a thorough test of the two upper porous strata in the limestone. The first of these is about 6 feet thick, and after drilling through some 15 feet of close-grained limestone the second porous strata, 16 feet in thickness, is encountered. A 12-hour test made when the well was undergoing repairs showed a production of 37 bbls., or approximately 75 bbls. a day, before the recent increase in wet gas production.

Spooner Oils' No. 1, LSD 12, Section 13-20-3w5, is in production at 5,260 feet and making 60 bbls. a day with 400 pounds back pressure. The diamond drill outfit is being used to clean out Vulcan Oils' No. 1, LSD 11, same section, which recently blew back into partial production after being frozen. Vulcan's No. 1 is making 60 bbls. a day. Spooner Oils' No. 2, Section 24-20-3w5, is drilling in the lower Fernie shales at 4,800 feet with considerable wet gas and light crude.

McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w5, in deep lime production at 3,771 feet, made 3,000 bbls. of crude naphtha in October, averaging close to 100 bbls. a day. McLeod's No. 1, same LSD, made 800 bbls., and was in production only part of the month. McLeod's No. 3, same LSD, has been cemented in the top of the lime at 4,751 feet, and will probably start drilling into the lime next week. As soon as No. 3 is finished, the drillers will clean out No. 1, which has been intermittently frozen since it got production in the deep lime.

Royalite Operations

Royalite Oil Co.'s No. 14, LSD 4, Section 7-20-2w5, which recently started to drill into the deep lime at 3,220 feet, is at 3,248 feet and trying to loosen the rotary drill rods. Royalite's No. 12, LSD 3, Section 13-20-3w5, is at 2,742 feet and drilling. Royalite's No. 13, LSD 6, Section 13-20-3w5, drilling at 4,165 feet; Royalite's No. 16, LSD 1, Section 12-20-3w5, at 3,425 feet, and reaming at 3,340



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feet; Royalite's No. 17, LSD 13, Section 6-20-2w5, drilling at 3,490 feet; Royalite's No. 18, LSD 15, Section 12-20-3w5, drilling at 2,808 feet; Royalite's No. 19, LSD 5, Section 6-20-2w5, drilling at 2,593 feet; Royalite's No. 20, drilling at 1,134 feet; Royalite's No. 22, Section 13-20-3w5, 10-inch casing cemented at 2,127 feet.

Foothills Oil & Gas Co.'s No. 2, LSD 8, Section 1-20-3w5, is drilling at 3,282 feet. Home Oil Co.'s No. 1, LSD 10, Section 20-19-2w5, stands cemented at 5,108 feet in the top of the lime. Home Oil Co.'s No. 3, LSD 14, same section, stands cemented at 3,760 feet.

Northwest Associated's No. 1, LSD 6, Section 20-19-2w5, is drilling around 1,053 feet. This test has made rapid headway recently, the drillers establishing the new record for the Turner Valley of 513 feet of hole in 48 hours.

Freehold Oil Corp.'s No. 1, SW Section 3-21-3w5, in the north end of the Turner Valley, is reported drilling at 2,160 feet with a gas flow of nearly 4,000,000 feet. This production comes from the Dakota sand which was entered at the comparatively shallow depth of 1,980 feet. Drilling is being handled by the Union Drilling Co. The company holds freehold rights on 186 acres, subject to one-eighth royalty to the Turner Valley Oil Co.

United Oils' No. 2, LSD 2, Section 24-20-3w5, is drilling in the lower Kootenay at 4,400 feet. New McDougall-Segur Oil Co.'s No. 2, LSD 14, Section 12-30-3w5, is drilling at 4,045 feet with casing at 4,015 feet. Advance Oil Co.'s No. 5, LSD 16, Section 19-19-2w5, is drilling near the top of the Dakota at 2,750 feet, after getting a small oil show and some gas in the Benton shales at 2,620 feet. Seneca Oil Co.'s No. 1, LSD 1, Section 34-20-3w5, is drilling an 8¼-inch hole at 4,920 feet, after getting a small show of light crude in the upper McDougall-Segur sand. Mayland Oil Co., LSD 10, Section 17-19-2w5, is drilling at 3,660 feet with 10-inch casing at 3,620 feet. Model Oils, LSD 8, Section 22-20-3w5, has resumed drilling at 2,550 feet after running 12½-inch casing. Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is at 3,331 feet and drilling through a bridge at 2,160 feet formed by heavy gas pressure. Safety appliances have been rigged up and the cellar cemented to meet high pressure conditions.

Plan 300-Mile Gas Line

A syndicate represented by Stanley Davies of Calgary and financed by United States capital is planning to utilize surplus gas from the Turner Valley Field to supply Regina and other Saskatchewan cities. Mr. Davies has submitted a written proposition to the Regina City Commissioners, as an alternative to an artificial gas proposition now under consideration. The project involves a pipe line of more than 300 miles, and an estimated capital investment of $20,000,000. It arrangements can be completed, work will be commenced in the spring. It is stated that the new enterprise has no connection with International Utilities, Ltd., which controls the companies supplying both Edmonton and Calgary with natural gas. The Davies syndicate has made tentative arrangements with independent companies in the Turner Valley to handle their production, which will, it is planned, be delivered to Regina at prices from 75 cents down for domestic and from 35 cents down for industrial purposes.

In the Turner Valley, British Dominion Oil Corp.'s No. 2, LSD 6, Section 12-20-3w5, is drilling at 2,070 feet. East Crest Oil Co., LSD 5-6, Section 16-19-2w5, is drilling at 2,670 feet. New Valley Oil Co., LSD 4, Section 6-21-2w5, is drilling at 2,100 feet. Stockmen Oils' No. 2, LSD 7, Section 27-30-3w5, is drilling at 2,970 feet.

On the Morley reserve near Calgary, Wabash Oils is drilling 380 feet in the Madison lime at 1,872 feet, and between 25 and 30 feet above the porous horizon. Several big blows of gas have been experienced. Norcon Oil Co.'s No. 1 is drilling. Melbourne Oils' No. 1 is shut down at 2,000 feet. In the Moose Mountain district, George Myers and Charles Hyslop have contracted with the Signal Hill Oil Co. to finish No. 2 well, LSD 9, Section 34-23-5w5, which has been shut down at 1,975 feet. They are straightening 200 feet of hole before drilling deeper.

High River District

In High River district, High River Oilfields, Ltd., has derrick timbers on the ground and cellar started for its No. 1 test in LSD 6, Section 34-18-29w4. C. C. Walker is in charge of the field work. The location is on the easterly slope of the High River structure. The Murray well, drilled some years ago on this structure, in Section 6-18-29w4, penetrated a dark green shale at 325 feet, getting a good gas showing at 330 feet and a better showing at 450 feet. At 500 feet beneath a hard capping more gas was met, with a still larger flow, accompanied by traces of oil, at 770 feet, where drilling was discontinued.

In the Wildcat Hills, 6 miles northwest of Cochrane, Frontier Oil Development Co.'s No. 1, LSD 2, Section 9-27-5w5, is drilling in the Bentons at 670 feet, after being shut down some weeks at 190 feet. On the Sinclair structure, Stellar Oils, LSD 2, Section 35-20-4w5, has camp buildings erected and derrick on location, and is planning to spud in this fall. Warner Oil Co.'s test, LSD 3, Section 28-18-3w5, is resuming at 120 feet.

In the Border Fields, Lethalta Oils' No. 1, LSD 5, Section 33-8-18w4, in the Chin district, is reported drilling at 2,100 feet, after striking several small gas shows. Commercial production is looked for around 3,000 feet. In the Skiff Field, Devenish-Imperial's No. 3, is erecting derrick and building a winter camp, and will spud in about the middle of November. The combination rotary-standard outfit from No. 2 will be used. Capitol Oil & Gas Co.'s test in Section 4-2-12w4, is reported drilling at 175 feet. On the Beaver Dome, Madison Oils, LSD 10, Section 24-2-11w4, is drilling at 589 feet after spending a week fishing for lost tools.

In the Warner district, Gas Production & Transportation, Ltd.'s, test is reported again drilling for 4½-inch casing below 4,100 feet. Commonwealth Petroleums has brought in a second light drilling outfit for structure tests on the Blood Indian reserve, and is spudding in a commercial test in Section 9-3-15w4. The latter will be the first test in Alberta to be put down with a gasoline outfit. Alberta Pacific Consolidated of Calgary is preparing for a commercial test on the Red Coulee structure 8 miles west of Coutts.

Pincher Creek

In the Pincher Creek district, southwestern Alberta, Alberta Gas & Fuel Co.'s Doherty No. 2, Section 11-6-2w5, is reported drilling below 3,000 feet. Doherty No. 3 on the Cyr ranch, Dry Wood Creek, has spudded in. It is reported that a newly organized syndicate has taken over and will complete the Mount Royal Oil & Gas Co.'s No. 1, LSD 4, Section 7-4-1w5, which has been shut down for nearly a year at 1,000 feet.

In the Cypress Hills district near Medicine Hat, Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w5, is standing at 2,780 feet with 10-inch casing at 2,68 feet, and will drill through the winter.

Range Oil & Gas Co.'s No. 2, LSD 1, Section 21-1-11w4, is drilling at 735 fe West of Coutts the Ko-Top Oils of C gary is building camp for a test on Red Coulee structure, in SE Section 2 17w4.

On the Montana side, Sunburst Oil Refining Co.'s Atkinson No. 2 in C SW Section 1-32-2w, has come in a gasser with a reported open flow of 300,000 feet. Michener syndicate of C gary has abandoned its test 3 miles e of Dutton with a string of tools and c siderable fishing equipment in the h but will start a new test on the sa structure.

In the Jumping Pound district w of Calgary, Imperial-Bow River's No. LSD 11, Section 31-24-4w5, is work on derrick.

Saskatchewan

In Saskatchewan, important discover of oil indications and oil shale depos are reported to have been made about miles southeast of Hudson Bay Junct in The Pas district. The discoveries w made in the old Porcupine Hills For Reserve, close to the Manitoba bound

Geologists representing a Toronto engineering company, have been in the field for some weeks. Some years ago oil shale deposits were reported in the Pasquia Hills, north of the Junction, but no development was undertaken there. The new shale discoveries near Hudson Bay Junction are reported to show a far greater potential oil recovery.

Ontario Fields

In the Ontario Fields, the Leo Wilson Syndicate test in Lot 16, Concession 1, Moore Township, Lambton County, which was reported a dry hole in the red shale around 2,500 feet, will likely be continued as a test of the Trenton limestone.

In Dawn Township, Lambton County, Union Natural Gas Co.'s No. 27 in the eastern end of the field was continued to the red shales to make sure there was nothing in the lower formations. It is now being plugged back and finished in the Salina, where the gas production was estimated around 1,500,000 feet a day. Union Natural Gas Co.'s No. 26 finished a dry hole in the red shales at below 2,100 feet. Union Natural Gas Co.'s No. 25, which failed to get production in the upper formations, will be continued as a test of the Trenton limestone.

In the Tilbury Field, Kent County, the Union Natural Gas Co. is cleaning out and refitting old wells in preparation for the winter.

LOUISIANA-ARKANSAS

(Continued from Page 54)

...an's No. 1 Jones, Section 16-17-11, is drilling chalk at 1,500 feet. Palmer Corp. has rig up to drill No. 11-B Hodges in Section 25-16-12.

Caddo Parish

Oil City—L. M. Emlet's No. 9 Glassell in Section 10-20-15 tested salt water with show of oil at 2,240 feet and is arranging to go deeper. Magnolia Petroleum Co.'s No. 3 Levee Board, Section 7-20-15, is standing 1,100 feet in oil and 100 feet of salt water from 17 feet of sand and is arranging to set 8-inch casing for a test, total depth 3,012 feet.

Pine Island—Dixie Oil Co. punched out plug at bridge at 2,300 feet in No. 92 Dillon in Section 13-21-15 and will set 4½-inch casing to test a gas show in 5 feet of lime and shell, total depth 6,099 feet. Magnolia Petroleum Co.'s No. 18 Robertshaw, Section 24-21-15, is drilling lime at 2,638 feet; No. 23 Robertshaw, Section 24-21-15, is drilling lime at 2,515 feet.

Claiborne Parish

Haynesville—Smitherman & McDonald dropped the red beds at 3,379 feet on No. 1 Miller, Section 17-23-8, the co-operative 4,500-foot test they are drilling, and tested dry with testing tool at 3,424-28 feet.

LaSalle Parish

Urania—Ayers Brothers are down around 150 feet with No. 6 Tremont in Section 30-10-2e. Randall and others' No. 1 Urania, Section 12-10-1e, is reported to have had a gas blowout at around 700 feet which hoisted drill stem and bailer out of the hole. They had a small show of gas at 630 feet last week.

Monroe District

Morehouse Parish—Natural Gas Products Co.'s No. 1 fee, Section 9-20-4, set 10-inch at 989 feet and is drilling at 1,500 feet. Southern Carbon Co. set 12½-inch at 179 feet on No. 7 Tensas, Section 15-22-4, 8-inch at 795 feet, and is drilling at 1,095 feet. Stovall Drilling Co.'s No. 1 Etheridge, Section 22-20-4, set 197 fee of 15-inch surface pipe and is drilling at 255 feet. United Carbon set 790 feet of 8-inch casing on No. 1 Wright, Section 10-20-4.

Ouachita Parish—Arkansas Natural Gas Corp.'s No. 1 Potts, Section 30-19-4, set 12½-inch at 206 feet and is drilling at 1,845 feet. Jordan Drilling Co. set 6-inch casing at 2,150 feet on No. 1 Cole, Section 1-18-3, and G. E. Jordan's No. 1 Hall, Section 12-18-3, is drilling at 3,140 feet. Magnolia Petroleum Co. got rig on No. 3 Millsaps, Section 36-20-4. Wall Drilling Co.'s No. 1 Lieber in Section 4-18-4 cemented 6-inch casing at 2,948 feet. Union Consumers Gas & Producing Co. set 10-inch at 185 feet and 8-inch at 850 feet on No. 2 Slaughter, Section 24-19-4.

Union Parish—Moody & Seagraves' No. 1 Dawkins, Section 17-20-4, cemented 8-inch casing at 767 feet.

Richland Parish

Community Oil & Gas Co. is drilling No. 1 Boughton, Section 33-16-6, at 2,290 feet. Magnolia Petroleum Co.'s No. 1 McCoy, Section 29-16-6, set 10¾-inch casing at 918 feet, and No. 1 C. M. Noble is a new location 660 feet north and 676 feet west SE cor. SE NW Section 36-16-5. Ouachita Natural Gas Co.'s No. 2 Pardue in Section 6-15-6, shut down at 605 feet while drilling a relief well to the Feazell crater, blew out from around 400 feet and is wild.

Webster Parish

Cotton Valley—Magnolia Petroleum Co.'s No. 5 Cox, Section 15-21-10, is bailing to test at 4,690 feet, total depth 4,800 feet; No. 1 McCook & Hibbler, Section 22-21-10, is drilling chalk at 1,730 feet. Ohio Oil Co. cemented 8⅝-inch casing at 3,565 feet on No. 42 Bodcaw, Section 27-21-10. Palmer Corp.'s No. 2 Tillman, Section 28-21-10, is in chalk at 2,260 feet. Superior Oil Co.'s No. 1 McCook & Hibbler in Section 21-21-10 is drilling lime at 4,052 feet.

Sarepta & Shongaloo—Virgil Helm set 10-inch casing at 283 feet and is drilling at 1,800 feet on No. 1 Martin, formerly listed as No. 1 Maxwell, in Section 7-22-9. James and others have temporarily abandoned No. 1 Elkins in Section 33-23-9 at 2,690 feet. Magnolia Petroleum Co.'s No. 1 Bond, Section 5-22-9, is drilling gumbo at 2,056 feet, and No. 1 Lewis, Section 25-23-10, is in hard lime at 3,163 feet; No. 1 Scroggins, Section 1-22-11, has rig up. Northwest Louisiana Gas Co. tested salt water at 3,418 feet and has temporarily abandoned No. 8 Pinewoods, Section 34-23-11.

ARKANSAS

Johnson County

Arkansas Natural Gas Corp.'s No. 1 Houston, Section 15-10-24, set 5⅜-inch casing with packer at 2,215 feet, total depth 2,225 feet.

Nevada County

Humble Oil & Refining Co.'s No. 5-C Graves, Section 1-14-21, is waiting on standard rig to pump, total depth 1,112 feet; No. 1 J. Haynie is a derrick 990 feet north and east of the center of Section 6-14-20.

Ouachita County

Smackover—Crosbie and others' No. 1 Primm, Section 23-15-16, is waiting on standard rig to pump with 200 feet of fluid in the hole from 13 feet of broken sand, total depth 2,019 feet.

Union County

Champagnolle—H. L. Hunt's No. 3 Gregory, Section 10-17-14, was dry from 2,738-49 feet in the shallow sand, and is drilling at 2,827 feet. E. M. Jones' No. 1 Sample, Section 7-17-13, is estimated good for 40,000,000 feet of gas and is setting 6⅝-inch casing at 3,142 feet, total depth 3,196 feet. Lion Oil Refining Co. has set 162 feet of 10-inch on No. 3 Nash, Section 6-17-13, and is drilling at 1,935 feet; No. 4 Union Sawmill, Section 7-17-13, set 6-inch at 3,074 feet to test 5 feet of sand, total depth 3,084 feet, and No. 5 is a new location 330 feet north and east SW cor. NW NE Section 7-17-13. Magna Production Co.'s No. 1 El Dorado Realty Co., Section 7-17-13, is drilling at 2,448 feet. Magnolia Petroleum Co. is coring No. 2 Dumas, Section 11-17-14, at 3,210 feet and has rig up for No. 2 Gregory in Section 15-17-14. Marine Oil Co.'s No. 3 Sample in Section 7-17-13 cemented 6⅝-inch casing at 3,058 feet to test 3 feet of sand, total depth 3,061 feet. Ohio Oil Co. set 3,007 feet of 6⅝-inch casing on No. 9 W. R. Crain, Section 1-17-14; No. 1 Frazier, Section 6-17-13, set 10-inch surface casing at 187 feet and is drilling at 1,022 feet; No. 2 Nash, Account 1, Section 6-17-13, is drilling at 2,470 feet, and No. 3 set 10-inch at 181 feet; No. 1 Nash, Account 2, in the same section, is drilling at 2,943 feet. No. 1 Ward in Section 14-17-14 is estimated good for 10,000,000 feet of dry gas from 5 feet of sand at 3,020 feet and is setting 6⅝-inch casing at 3,013 feet of a test. J. W. Olvey's No. 1 Sample, Section 7-17-13, was dry from 3,058-64 feet and is drilling at 2,167 feet. Skelly Oil Co. has rig up

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Smackover—Lovett and others, who have been shut down for a month repairing rig on No. 1 Goodwin & Stone in Section 3-16-16, are drilling again at 800 feet. Simmons and others' No. 1 Green, Section 3-16-16, is shut down for orders with 1,000 feet of fluid, 99 per cent water, standing in the hole from 2,335 feet, total depth.

EAST TEXAS

Harrison County

Nick Barbare cemented 10-inch at 63 feet and 6-inch at 2,232 feet on No. 4-A-1 Furrh in the James Short Survey and has derrick up for No. 4-A-2.

Panola County

Eureka Natural Gas Co. is moving in to drill No. 1 Becknell in the Elijah Williams Survey. Magnolia Petroleum Co.'s No. 2 Lula Fletcher in the B. C. Jordan Survey is drilling lime at 2,477 feet; No. 2 Steele in the same survey is in lime at 3,227 feet. Natural Gas Producing Co.'s No. 2 Moore in the B. C. Jordan Survey is drilling at 2,060 feet; No. 3 is a location 8,879 feet east and 7,928 feet south NW cor. B. C. Jordan Survey. D. Thomason is arranging to lubricate No. 11 Crenshaw in the B. C. Jordan Survey and set a string of 6⅝-inch casing to cut off a blowout at 2,460 feet; No. 12 Crenshaw is a location 3,070 feet east and 800 feet south SW cor. John Womack Survey in the B. C. Jordan headright.

LA.-ARK. WILDCATS

(Continued from Page 54)

other test on No. 1 Moffatt in Section 28-16-8, Ashley County, Arkansas, in the red beds at 3,658 feet and got hot salt water and is drilling at 3,667 feet. This is the fourth water test in this well, the others being at 2,176, 2,778-92 and 3,258-91 feet. Amerada Petroleum Corp.'s No. 1 Matlock in Section 10-12-13, Calhoun County, is drilling in the red beds at 3,577 feet. Two wells that have been shut down for some time have resumed operations. Crawford and others' No. 1 Cashion in Section 14-18-2, Chicot County, shut down October 18 at 1,800 feet, is drilling at 1,900 feet and J. G. Marcum and others' No. 1 DeYampert in Section 5-19-4, Ashley County, shut down October 11 at 1,500 feet, is drilling at 1,700 feet.

Bradley County

J. B. Hurley and others have rig up for No. 1 Arkansas Timber Co., 689 feet south and 340 feet west of the center of Section 29-16-12, Bradley County. In the western part of Union County, Arkansas, where more or less deep drilling is in prospect, Garrett-Modisett Drilling Co. made its first test on No. 1 Murphy in Section 30-17-17, dry at 3,092-95 feet and is shut down at 3,196 feet waiting for fuel.

Among other geophysical work going on in this division, the Spitz petrolometer appears to have convinced certain individuals of its merits and three surveys have been made, according to Spitz' agents here. One of these was in more or less vacant territory just south of Pine Island on which there is already some production. Seventeen shots were made on the lease in question but the owner states he will not drill either of them this year. In another case one shot was made for Chittesser & Lewis on a block in Hinds County, Mississippi, near Edwards, on which Spitz claims his instrument showed a positive reaction from a depth of 1,331 feet. He also has completed the report of a survey in central Louisiana in which he says a series of shots revealed a structure. According to his local representatives a well is due to start on one of these blocks within 90 days. It will be watched with considerable interest.

Mississippi Operations

The Texas Company and the Atlantic Oil Producing Co. have completed two blocks in west central Mississippi and plan to drill a well to go 4,000 feet some time in the near future. One of the blocks is of 25,000 acres in Sharkey County, just east of Carey, and the other consists of 106,000 acres in Washington and Sharkey Counties. The well is to be located in the SE cor. Section 30-16-6, Washington County. It also is reported that the Arkansas Natural Gas Corp. plans to go back on No. 1 Rye in Section 22-15-17, Monroe County, and drill it deeper, to 4,000 feet, possibly, and, failing to get anything, to drill other shallow wells to the formation from which the Rye and Amory Petroleum Co.'s Carter well in the same county produced. The Carter well was the discovery well and supplied the town of Amory with gas for a considerable period. The Rye well also made some gas, 3,000,000 to 4,000,000 feet, but salt water took it and it was abandoned at 2,718 feet, the gas coming from around 2,693 feet where it had 6 feet of sand.

It is also reported that S. A. Hobson and others are drilling a well on the Wilson farm in Section 27-7-1w, Washington County, Alabama, in that part of the State where over 200,000 acres on the Hatchitigbee anticline has been leased by three or four of the major companies and numerous individuals or groups of individuals.

NORTH LOUISIANA

Bienville Parish

W. G. Gray is drilling No. 1 Johnson, Section 21-18-6, at 900 feet.

Bossier Parish

Morgan Oil Co. has temporarily abandoned No. 1 Smith, Section 26-19-11, made location 200 feet south and 19[illegible] feet west of the NE cor. NW NW of the same section for No. 2 and has set 6-inch casing at 370 feet. Triangle Drilling Co.'s No. 1 Bulkley, Section 9-20-12, is drilling hard lime at 3,677 feet. Woodley Petroleum Co.'s No. 2 Whitehurst, Section 36-16-12, is drilling at 850 feet.

Caddo Parish

Gulf Refining Co.'s No. 1 Attaway, Section 1-18-15, is drilling shale and lime at 4,407 feet. Tidal Oil Co.'s No. 1 McCrary, Section 23-19-16, is drilling at 1,150 feet.

Claiborne Parish

Dixie Oil Co. is arranging to set 9-inch casing at 3,408 feet on No. 1 Gilbert in Section 27-21-5.

DeSoto Parish

Benedum & Trees Oil Co. is drilling No. 1 State, Section 22-14-12, at 1,53[illegible] feet. Luke Case and others have rig up to drill No. 1 Boatright in Section 3-13. E. O. Roy's No. 1 Whitaker, Section 5-13-13, is bailing to test, total depth 2,830 feet.

East Carroll Parish

Palmer Corp. is reaming No. 1 Carroll Land Co., Section 21-19-11, to set 6-inch at 2,868 feet.

Franklin Parish

Davis and others' No. 1 Moore, Section 12-11-6, is drilling at 1,000 feet.

Monroe District

Ouachita Parish — Ouachita Natural Gas Co. is drilling gumbo at 2,550 feet on No. 2-B D'Arbonne, Section 25-19-2.

Union Parish—Carter & Wingfield No. 2-A Clark, Section 1-23-1e, is waiting on standard rig to pump from [illegible] feet of sand, total depth 2,295 feet. No. 2 Security Trust in the same section has set 80 feet of 10 inch surface pipe and No. 3 Security Trust in Section 2[illegible] 23-1e, is drilling at 2,500 feet. J. Cammatte and others have made location for No. 2 Tugwell, 760 feet south and 600 feet west NE cor. NE NW, Section 21-22-1e. H. C. McDonald's No. 1 U. S. in Section 18-23-1e, is drilling at 1,015 feet. Woodley & Fox are drilling No. 1 McLeod, Section 13-19-1e, at 500 feet.

Richland Parish

Richland Operating Co.'s No. 1 Taylor, Section 24-16-6, is on a rock at 450 feet.

Sabine Parish

W. G. Doerne is drilling No. 1 Picking, Section 17-4-11, at 4,360 feet. L. Gay's No. 2 Bowman-Hicks, Sec. 14-7-14, set 88 feet of 10-inch and drilling at 1,400 feet.

ARKANSAS

Ashley County

Atlantic Oil Producing Co. tested salt water at 3,658 feet on No. 1 Moffatt, Section 28-16-8, and is drilling at 3[illegible] feet. J. G. Marcum and others' No. 1 DeYampert in Section 5-19-4, has resumed drilling after a month's shut down, and is drilling at 1,700 feet.

B. Hurley has rig up to drill No. 1 Arkansas Timber Co., 689 feet south and 341 feet west of the C Section 29-16-12.

Calhoun County

Amerada Petroleum Corp. is drilling in the red beds at 3,577 feet on No. 1 Matlock, Section 10-12-13.

Chicot County

Joe Crawford and others' No. 1 Cashion, Section 14-18-2, shut down at 1,800 feet a month ago, is drilling at 1,900 feet. Sam Hunter's No. 1 Sawyer, Section 19-18-2, is shut down at 3,112 feet for repairs to the rig.

Clark County

McKenzie Oil Co. has a twistoff in No. 1 Eakin, Section 9-11-19, and is fishing for drill stem, total depth 1,700 feet.

Logan County

Arkansas Natural Gas Corp.'s No. 1 Parks, Section 26-8-24, is sidetracking 8¼-inch casing at 2,407 feet, total depth 3,203 feet.

Union County

El Dorado—J. P. Hawkins has rig up to drill No. 1 Goodwin in Section 6-17-15. McDonald Brothers' No. 1 Mayfield, Section 29-19-15, is drilling at 1,983 feet. Starke and others have set 30 feet of 15-inch surface casing and 197 feet of 10-inch on No. 1 Powell, Section 35-18-15. Tharpe Drilling Co. got a fish out of the hole and are shut down for orders on No. 1 List, Section 25-17-15.

Lisbon—Imperial Oil & Gas Products Co.'s No. 1 Goodwin, Section 26-17-16, is drilling gumbo at 2,650 feet.

Lawson—Morefield & Tate are drilling No. 1 Smith, Section 6-18-13, at 2,635 feet.

Miscellaneous—Garrett-Modisette Drilling Co.'s No. 1 Murphy, Section 30-17-17, was dry at 3,092-95 feet and is shut down at 3,196 feet waiting for fuel.

EAST TEXAS

Shelby County

Gulf Refining Co.'s No. 1 Pickering in the P. W. Harvey Survey had a show of about 250,000 feet of gas in sandy lime at 3,243-44 feet, cored 4 feet deeper and blew out with about 2,000,000 feet of gas.

GULF COAST FIELDS

(Continued from Page 59)

Kirby is drilling gumbo at 1,721 feet and its No. 2 Smith is a derrick. No. 1 Smith, the good producer, which started this drilling activity, sanded up the past week and now is pulling drill stem to work over. It came in with the drill stem in the hole. Joe Bashara's No. 1 Tarbutton is drilling gumbo at 1,275 feet.

These tests are on the southeast side of the dome and on the southwest flank, Yount Lee Oil Co.'s No. 1 Chambers County, is drilling gumbo at 1,153 feet. This company's No. 1 Richardson has spudded in.

Liberty—Liberty County

Liberty is another field which has revived considerable activity as a result of a new discovery, the latter being Sun Oil Co.'s No. 10 Mitchell, which found a shallow sand at 875 feet on top the dome. This well continues to hold up and now is making more than it did when brought in. Daily production now is around 1,600 bbls. This company's No. 11 Mitchell is drilling gumbo below 1,300 feet. No. 12 Mitchell is spudding in and No. 13 Mitchell is a location.

The Texas Company also has spudded in on its No. 13 Staiti, the south offset to the Sun Oil Co.'s new well and is rigging for No. 14 Staiti, 150 feet east of No. 13 and an offset to a new test started by Sun Oil Co. The Texas Company also has a derrick up for No. 15 Staiti, 150 feet west of No. 13. No. 15 Staiti, to offset Gulf Production Co.'s No. 1 Chambers (west offset to Sun's shallow producer) has been spudded in.

Yount Lee Oil Co.'s No. 12 Mitchell has been rigged up. This, however, is not in the same district where the shallow well is but rather to the east where the north extension to the field in the flank sand is being developed.

A mile northwest, the Vacuum Oil Co. is busy moving in for a test in the Trinity River. This is in the district where The Texas Company last spring completed a good wildcat producer (still producing) and which started a drilling boom in which a dozen tests were drilled, mostly failures. There has been no drilling there since early summer.

On the west flank of the Liberty Dome, in what is known as the South Dayton district, Humble Oil & Refining Co.'s No. 9 Welder is drilling rock at 3,433 feet.

Boling—Wharton and Fort Bend

Gulf Production Co.'s No. 2 E. C. Farmer is drilling hard sand at 3,113 feet. Heep & Hawn's No. 1 River Bed in the San Bernard River, has been shut down temporarily because of high water after drilling to 162 feet. Scott & Peck's No. 1 Armstrong is standing at 1,060 feet. Sun Oil Co.'s No. 5 E. C. Farmer is drilling sandy shale at 3,154 feet.

On the southwest flank, The Texas Company's No. 12-A Taylor is drilling sand, lime and pyrites at 3,676 feet. The Texas Company's No. 2-B Taylor is in shale and lime at 2,852 feet.

Blue Ridge—Fort Bend County

Gulf Production Co. is rigging up for its No. 16-B Blakely following the completion of No. 15-B. This offsets Sinclair Oil & Gas Co.'s No. 5 Davison. Gulf also is rigging up to deepen No. 5 Invincible. Humphreys Corp. is rigging up to deepen No. 3 West Schenck, an old producer on the south flank. J. S. Abercrombie's No. 4 West Schenck, another old well being deepened, is drilling below 2,753 feet.

On the northwest flank, Watts Oil Co.'s No. 3 Scott is drilling at 1,875 feet and No. 9 Blakely is in gumbo at 825 feet. Blakely & Means are preparing to deepen their No. 1 Blakely. Navarro Oil Co. has a location for No. 7 Robinson.

Big Creek—Fort Bend County

Gulf Production Co. is rigging up its No. 49 Davis to pump. The well would not flow when bailed at 3,775 feet but is expected to make a good pumper. A rig is up for No. 50 Davis and No. 14 Davis, an old well, is to be deepened. Navarro Oil Co.'s No. 2 Hausler tested dry at 3,502 feet and now is drilling deeper in hard sandy lime at 3,607 feet. This company's No. 2 Davis, a derrick, and The Texas Company's No. 4 Wheat, a rig, are standing.

Nash Dome—Fort Bend and Brazoria

Humble Oil & Refining Co. and Rycade Oil Corp.'s No. 1 Wisdom is drilling gumbo at 3,374 feet. Rycade Oil Corp.'s No. 24 Wisdom is sidetracking in gumbo at 3,689 feet.

Hardin County Domes

At Batson, Gulf Production Co.'s No. 20 Knight fee is being rigged up to pump at 753 feet. Paraffine Oil Co.'s No. 79 Paraffine is down 976 feet.

Rio Bravo Oil Co.'s No. 28 Teel, deep test on east side of the dome, is drilling gumbo at 1,957 feet.

All other tests at Batson, Sour Lake and Saratoga are standing.

Pierce Junction—Harris County

H. R. Cullen's No. 5 Howe, east flank, tested dry at 5,787 feet and screen is being pulled to deepen the hole. Gulf Production Co.'s No. 26 Taylor is fishing drill stem stuck at 4,214 feet. Navarro Oil Co.-Texas Exploration Co.'s No. 11 Dooley is drilling sidetracked hole at 3,964 feet in hard sand.

Rio Bravo Oil Co.'s No. 9 fee, west side, is drilling shale at 5,206 feet. No. 10-B Settegast is drilling gumbo at 2,542 feet and No. 11-A Settegast is in gumbo and lime at 3,103 feet. Shaw and associates' No. 2-E Fitzsimmons on the north is drilling gumbo at 2,589 feet. Moody Corp.'s No. 3-B Whitehead is drilling rock at 3,494 feet and its No. 1-A Whitehead is down 5,318 feet where 4½-inch casing has been cemented. Moody has a derrick up for No. 2 Boyles and its No. 4-B Settegast, a wildcat on the south side, is rigged up.

Goose Creek—Harris County

Humble Oil & Refining Co.'s No. 74 Simms-Smith, wildcat northeast of the field, is drilling sandy shale at 4,865 feet. Gulf Production Co.'s No. 17-A Tabb is drilling at 2,152 feet. The latter's No. 12 Stateland is drilling at 2,-

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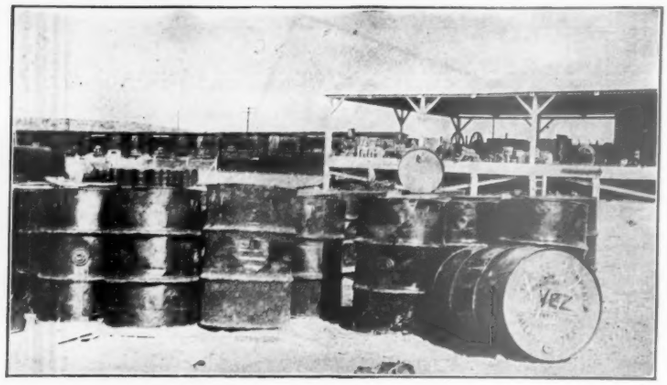

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315 feet. Jim McMurry's No. 3 Grace Addey is drilling at 2,567 feet.

Spindletop—Jefferson County

At the close of the week, Gulf Production Co.'s No. 17-A Marrs McLean, an old well deepened, still was bailing to test at 5,050 feet. L. A. Painter's No. 3 Rush is drilling at 4,095 feet and No. 1 Gordon at 2,914 feet. No. 2 Gordon has just started drilling and is down 712 feet. Unity Petroleum Co. has a rig up for No. 11 Gladys City.

Yount Lee Oil Co.'s No. 16 Gladys City, an old well being deepened, is drilling shale at 5,289 feet. No. 20 Gladys City, another old well, is drilling at 3,092 feet. No. 40 is in sand and boulders at 4,738 feet and No. 71 in shale and lime at 4,482 feet. No. 70 is fishing.

On the McFaddin lease, Yount Lee Oil Co.'s No. 20 is being rigged up to pump from sand at 3,100 feet. This is a workover. No. 84 is waiting on casing cement to set at 3,151 feet. No. 31, an old well being deepened, is in shale and lime at 5,186 feet. A derrick is up for No. 85.

Yount Lee Oil Co.'s No. 6 fee Saturday was drilling plug at 4,251 feet to test a sandy shale showing oil. No. 12 fee was swabbing and No. 1 Davis was drilling shale at 2,813 feet. The latter three are all old wells deepening.

Hull—Liberty County

Gulf Production Co.'s No. 23 Phoenix, an old well, is drilling at 2,763 feet. A location has been made for No. 19 Scarborough. Humble Oil & Refining Co. also has a location for No. 24 Guedry. Republic Production Co.'s No. 85 Dolbear is drilling at 2,135 feet in sidetracked hole. No. 106 Dolbear, another old well, is starting to deepen and is drilling at 1,643 feet.

Orange—Orange County

Humble Oil & Refining Co. has rigged up to deepen its No. 12 Winfree. Sun Oil Co.'s No. 6 Brown is drilling at 5,432 feet. No. 4 Gunstream, which has been standing with drill stem stuck, is fishing and trying to clean hole preparatory to deepening. Bottom of the hole is 3,965 feet.

High Island—Galveston County

Gulf Production Co. has rigged up for No. 8 George Smith, which is to offset its No. 1 Spencer, completed the past week for a small pumper. Marrs McLean's No. 11 Cade is drilling gumbo and lime below 3,380 feet. No. 12 Cade is in gumbo and shale at 3,750 feet.

Raccoon Bend—Austin County

Humble Oil & Refining Co.-Valley Oil Co.'s No. 2 Urban Saturday was under control again after having blown out early Friday. The derrick and rig were destroyed by the fire following the blowout, which came when the test drilled into an unexpected gas sand at 2,327 feet. These operators' No. 1-B Grawunder is drilling hard lime at 2,655 feet, and No. 1-C Grawunder in sandy shale at 1,016 feet. No. 1-B Bracey is drilling rock at 1,561 feet. No. 1 Beal is in shale and lime at 1,525 feet and No. 1 Hardy in shale at 490 feet. No. 2 Walton is standing at 204 feet with surface casing cemented.

DeWalt—Fort Bend County

Humble Oil & Refining Co. has rigged up for its fourth test on the Sugarland Industries tract. No. 1 Dew Brothers is drilling sandy shale at 2,050 feet and No. 1 Nelson is in gumbo and lime at 1,498 feet.

SOUTH LOUISIANA

Lockport—Calcasieu Parish

Vacuum Oil Co.-Gulf Refining Co.'s No. 21 Miller has drilled plug to test an oil showing sand at 3,887 feet. On the same tract locations have been made for Nos. 22 and 23 and No. 3 Miller, an old well being deepened, still is trying to pull screen after testing salt water at 4,454 feet. No. 4-A Farquahar, another old well deepening, is drilling sandy shale at 4,435 feet. No. 6 Lock-Moore is drilling water sand at 6,128 feet. No. 1 Henshaw-Lemoin is in hard sand at 3,253 feet and No. 2-A fee is cutting out liner to deepen.

Jennings—Acadia Parish

Although considerable interest was revived in the deep sands of the west flank the past week by the completion of E. F. Simms' No. 1 Ernest Cockrell, most of the other rigs in that district did but little work. Mr. Simms' Nos. 1 and 2 Syndicate Clemont were both working around trying to clean out holes, the former at 3,872 feet and the latter at 3,305 feet. No. 1 Jennings is drilling at 3,140 feet and No. 1 Con Schuler at 3,440 feet. No. 2 Ernest Cockrell is standing as a derrick. Gulf Refining Co.'s No. 2 Lekelt is drilling at 4,535 feet. Cranfill & Reynold's No. 1 Donnelly is drilling below 3,000 feet. Abshire-Bolyard Oil Co.'s No. 5 fee is standing a derrick.

Jennings Petroleum Co.'s No. 2 Crowley has been rigged up. Yount Lee Oil Co.'s No. 3 Crowley is drilling sand and shale at 3,566 feet and its No. 4 Housierre-Latrielle is in sand and shale at 4,708 feet.

Vinton—Calcasieu Parish

Gulf Refining Co.'s No. 47 Star Vincent is drilling below 2,193 feet. Salt Dome Oil Co.'s No. 1 Shaw is drilling at 1,138 feet and Vinton Petroleum Co.'s No. 2 Gordon at 3,217 feet.

Edgerly—Calcasieu Parish

Drysdale & Savoy are spudding in on their No. 4 Hill and Rex Petroleum Co.'s No. 1 Narroni is drilling at 3,740 feet. These are the only rigs running at Edgerly.

Hackberry—Cameron Parish

Calcasieu Oil Co.'s No. 4 Vallery is drilling rock at 2,455 feet. The same company's No. 12 Watkins is drilling sand and boulders at 1,505 feet. Yount Lee Oil Co.'s No. 22 State Land is drilling rock and its No. 8 School Land is in rock at 3,283 feet. Rycade Oil Corp.'s No. 1 Gulf Land is drilling sand and gravel at 1,020 feet. Shallow Oil Co.'s No. 1 Lacy is down 118 feet in gumbo where 10-inch surface casing has been set. Louisiana Land & Exploration Co.'s No. 3-B Calcasieu Lake has set 9¼-inch casing at 3,941 feet to test sandy shale below that depth.

Miscellaneous Fields

As the week closed, The Texas Company's No. 33 Koehler, Humble, Harris County, an old well deepened, was bailing to test a sandy shale at 3,211 feet. It was showing some oil and water and was expected to make a small well. No. 24 Koehler still is held up at 2,972 feet with a fishing job. Gulf Production Co.'s No. 17 Moore at Orchard, Fort Bend County, is drilling sticky shale at 3,884 feet. Fort Bend Oil Co.'s No. 1 Moore is in shale and lime at 2,100 feet. Sinclair Oil & Gas Co. has rigged up No. 5 Norton at Damon Mound. Sun Oil Co. made location for No. 1 Koveleika, a wildcat on the west flank of the North Dayton Dome. It is in the G.C. &S.F. Survey around 6,000 feet northwest of Harrison Oil Co.'s No. 3 Quintette, deep producer at North Dayton.

In Louisiana, Gulf Refining Co.'s No. 12 Lutcher-Moore at Starks, Calcasieu Parish, is drilling at 3,767 feet and No. 11 Lutcher-Moore at 4,210 feet. No. 12 Industrial at 3,536 feet. Pure Oil Co.'s No. 6 Yount Lee Oil Co. at Sweet Lake, Cameron Parish, cored sand without an oil showing at 5,757 feet. Yount Lee Oil Co.'s No. 3 Louisiana Petroleum Co., Anse La Butte, St. Martin Parish, is drilling rock at 2,483 feet. Gulf Refining Co.'s No. 11 United Land Co., Sorrento, Ascension Parish, is rigging up. This company's No. 2 Kling, Loreauville, Iberia Parish, is in sand and shale at 1,941 feet and No. 7-Z State is rigging up.

Miscellaneous Wildcats

Texas

Austin County—Gulf Production Co.'s No. 1 Jackson, first test on the San Felipe (Sealy or Brookshire) Dome on the Austin-Waller County line, has cemented 6⅝-inch casing to test oil showing in what is believed to be cap rock at 3,220-35 feet. Dixie Oil Co. has spudded in on No. 1 Brazos in the Brazos River on the Waller County side.

Brazoria County—Roxana Petroleum Corp.'s No. 3 Reece, Allen Dome, is drilling blue sandy shale at 1,755 feet. No. 5 Allen is drilling sandy lime and pyrites at 3,588 feet. Roxana also is rigging up to deepen its No. 1 Random, completed last August as a 137-bbl. producer at 5,584 feet. At Stratton Ridge, Bartell and associates' No. 8 Tolar

Dannenbaum tested salt water at 3,142 feet and has been shut down. This is an old hole which was worked over. Empire Gas & Fuel Co.'s No. 1 Brock, Stratton Ridge, is drilling at 325 feet.

Chambers County—Pure Oil Co.'s No. 2 Lost River, Lost Lake Dome, is drilling gumbo at 2,758 feet.

Colorado County—The Texas Company's No. 1 Hoyo, Eagle Lake district, has been spudded in. East of this in the G.H.&H. Survey No. 13, DeFoor and associates have made location for No. 1 Dromgoole.

Fort Bend County—Gulf Production Co.'s No. 9 Trone, Long Point, Fort Bend County, drilled into salt at 4,106 feet and has been abandoned. This company's No. 12 Wolf, which blew out as a small gasser the previous week, in cap rock at 601 feet, has been shut down after testing salt and sulphur water. West and associates' No. 1 Hartfield, T.&T.C. Survey, near Needville, cored sand without a showing at 2,570 feet. It now is drilling below 2,835 feet.

Galveston County—Republic Production Co.'s No. 1 Lobit, Dickinson, is drilling sand and shale at 2,246 feet. Long and associates' No. 1 Irwine & Bishop, which has been standing at 2,680 feet since September, is being washed to the bottom and operations probably will be resumed.

Harris County—Humble Oil & Refining Co.'s No. 1 Minnetex, Mykawa, is drilling hard sand at 4,167 feet. Other scattered wildcats in the county are standing.

Jackson County—The Texas Company's No. 1 Moore, D.&G.N. Survey, 16½ miles north of the Edna gas field, is down 2,704 feet and reaming. Wright Brothers' No. 1 Lawrance, John McHenry Survey, 12 miles northwest of Edna, is shut down at 3,030 feet and shale and shell. These operators so far have not tested their No. 7-A Drushel which is in a gas sand at 3,200 feet. No. 2 Classen is standing with drill stem stuck at 3,200 feet.

Jefferson County—Gaddy Oil Co.'s No. 1 Lanham, north of Beaumont in the A. Williams Survey, is drilling gumbo at 1,791 feet. Oswald Dome Syndicate's No. 3 Oswald, M. Peveto Survey, 2 miles south of Cheek, is drilling shale at 3,493 feet. The Texas Company's No. 1 Pipkin, Big Hill, is rigged up. Gulf Production Co.'s No. 2 Burrell, Fannette, is in sand and shale at 3,830 feet. River Oil Corp. has a location for No. 1 Ship Channel in the Brown Survey. Westbury Syndicate's No. 1 West, 1 mile northeast of Westbury, T. D. Yoakum Survey, is drilling at 634 feet.

Liberty County—Humble Oil & Refining Co.'s No. 3 Sterling, Moss Bluff, is setting 6⅝-inch casing to test a sand at 2,743 feet. The Texas Company's No. 1 Davis, Davis Hill, is drilling sticky shale at 3,865 feet.

Washington County—Sun Oil Co.'s No. 2 Grote is coring sandy shale showing oil at 1,207 feet. The 8¼-inch casing was at 970 feet. This company's No. 1 Marcus is drilling shale at 691 feet and a rig is up for No. 1 Einman.

South Louisiana

Gulf Refining Co.'s No. 1 Housierre-Latrielle, Egan Dome prospect, Acadia Parish, is drilling below 5,256 feet. Burnside Oil Co.'s No. 1 Robert, Ascension Parish, is drilling at 633 feet. Lahay and associates' No. 2 Jones, Calcasieu Parish, has resumed drilling after being shut down several months and is down 2,617 feet. Roxana Petroleum Corp.'s No. 5 Watkins, Black Bayou, Cameron Parish, is drilling sand and gravel at 893 feet. Evangeline Oil Co.'s No. 1 Crowell is drilling gumbo at 3,358 feet.

Louisiana Land & Exploration Co.'s No. 2 Averys Island, Iberia Parish, is drilling hard sand at 5,412 feet. This company's No. 3-A Vermillion Bay is drilling sand, boulders and lime at 750 feet. Roxana Petroleum Corp. has made location for its third test, No. 3 Wilbert, on the White Castle Dome, Iberville Parish. Standard Oil Co.'s No. 1 Wilbert, Bayou Blue Dome, drilling sand at 3,798 feet.

Vacuum Oil Co. has made location for No. 1 DeVilbiss, east of the Welsh Field, in Jefferson Davis Parish. It is in Section 14-9s-4w. Gulf Refining Co.'s No. 7 Stark, Thibodaux, LaFourche Parish, is in lime and gypsum at 1,379-80 feet. Ohio Oil Co.'s No. 3 Martin, Hager Dome, is drilling sandy shale at 3,812 feet.

SOUTHWEST TEXAS

(Continued from Page 56)

457, School-Mirando Field, 1,470 feet to west line and 2,490 feet to north line, is moving on.

O. W. Killam's No. 27 Bruni, Block 64, Albercas Field, 2,902 feet to south line and 947 feet to west line, is drilling at 200 feet.

O'Hern & Seacord's No. 7 Benavides, Survey 174, Block 11, Cole gas field, Webb-Duval County, 540 feet to southeast lines and 535 feet to northeast lines, is moving on.

J. J. O'Hern's No. 1 Benavides, Survey 697, Block 6, 150 feet to south and east lines, is moving on.

Cole Gas Field—Duval

O'Hern & Seacord's No. 6 Benavides, Survey 172, located 3,125 feet to the north and west lines, at 2,840 feet is in sand with oil odor.

Humble-Reiter-Foster Pool

Humble Oil & Refining Co.-Reiter-Foster's No. 10 Kohler, Survey 166, located 165 feet to east line and 1,605 feet to south line, is drilling at 100 feet; No. 11 Kohler, Survey 395, located 1,155 feet to north line and 165 feet to west line, is rigging up.

Schoolfield & O'Byrne Field

Magnolia Petroleum Co.'s No. 1-B C. W. Hahl, Survey 61, located 3,081 feet to east line and 150 feet to south line, at 2,345-48 feet in sand bailed dry and is drilling deeper; No. 2-A Hahl, Survey 51, located 150 feet to south and east lines, at 2,325 feet had sand testing salt water and is now coring sand at 2,415 feet. Sun Oil Co.'s No. 1 W. P. Norton, Survey 250, located 150 feet to south and east lines, is moving in machinery; No. 1 Henne-Winch, Survey 250, located 150 feet to south and west lines, at 2,339-45 feet swabbed 220 bbls. and is installing tubing. Schoolfield & O'Byrne's No. 1 Bowe, Survey 250, Block 21, located 150 feet to north and east lines, is drilling at 2,000 feet after testing dry in sand at 1,614-19 feet. Onyx Oil Co.'s (Schoolfield-O'Byrne-Pearson) No. 2 Krauter, Survey 250, Block 10, located 558 feet to east line and 150 feet to south line, is drilling at 600 feet. The Texas Company's No. 1 Hahl, Survey 250, Block 18, located 150 feet to north and west lines, is drilling at 250 feet.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 41 Merchants State Bank, Survey 115, located 150 feet to the north and east lines, is moving on. T. J. Conway's No. 1 C. Palacious, Survey 232, Block 6, located 175 feet to north and east lines, at 1,220-43 feet had sand, another sand at 1,335 feet and another at 1,345 feet and is drilling ahead with no tests made.

Alworth Pool

Alworth-Stevens-Hild's No. 13 M. Garza, Survey 39, Block 9, located 115 feet to northwest lines and 630 feet to northeast lines, is standing at 1,020 feet.

Reiser Field—Webb

Marts & Beavin's No. 1 Johnson, Survey 1,617, Block 9, located 500 feet to the north line and 100 feet to the west line, at 2,052-53 feet tested dry and is drilling at 2,240 feet. R. C. Holsworth's No. 1 Wheatley, Survey 1,569, Block 3, located 847.7 feet to the north line and 305.2 feet to the east line, is standing at 1,481 feet.

Mid-Ojuelos Field

Aviator Gas Co.'s No. 1 E. Garcia, Survey 606, Block 11, located 150 feet to the south and east lines, is testing at 1,610 feet.

Albercas Field

O. W. Killam's No. 25 Bruni, Block 64, located 1,002 feet to the north line and 1,247 feet to the east line, is drilling at 2,771 feet; No. 26 Bruni, Block 64, located 975 feet to the west line and 1,510 feet to the south line, at 2,202-04 feet has sand showing oil and is testing; No. 1-M Bruni, Block 11, located 1,470 feet to the north line and 293 feet to the

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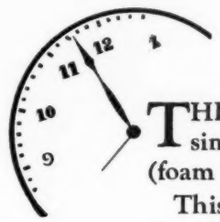

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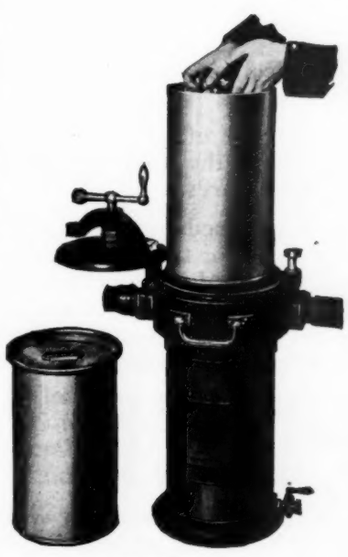
Note how the head swings to one side to give clear access to inside of accumulator. Special powder containers are slipped in or pulled out with one movement.



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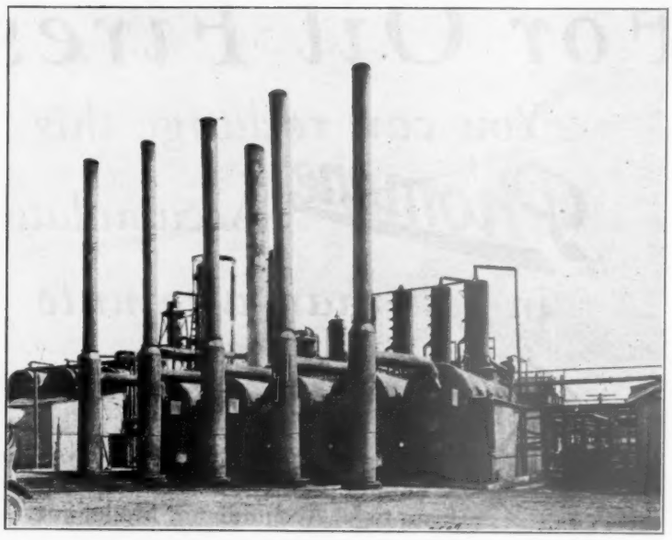

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west line, at 1,863 feet has sand showing oil and is testing on drill stem test. Magnolia Petroleum Co.'s No. 13 Yeager-Strohman, Share 5, located 150 feet to west line and 750 feet to south line, is drilling at 1,570 feet. Houston Oil Co.'s (Rycade) No. 2-A Yeager-Strohman, Share 5, located 381 feet to the north line and 2,248 feet to the east line, is rigging up.

Sun Oil Co.'s No. 7-A Yeager-Strohman, Share 5, located 3,175 feet to the north line and 150 feet to the west line, has derrick up. Rycade Oil Corp.'s No. 3 Yeager-Strohman, Share 5, located 450 feet to the north line and 150 feet to the east line, is drilling at 1,575 feet.

Aviator Field

G. C. Salley's No. 1 Puig, Carter-Pinkton tract of Puig ranch, 220 feet to west line and 150 feet to south line, has rigged up and is standing. Suladie & Mimms' No. 1 Puig, 450 feet to east line and 155 feet to north line of Puig (Kirkpatrick) tract, is drilling at 1,580 feet.

Carolina-Texas Gas Field

C. R. Miller's No. 1 de la Garza, Survey 48, Block 47, located 150 feet to the north and east lines, is drilling at 1,140 feet.

Andrews Field

Gleason Oil Corp.'s No. 2 Benavides, Survey 11, Block 11, located 300 feet to northwest lines and 250 feet to northeast lines, is drilling again at 1,400 feet.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 65 Benavides, Survey 412, Block 4, located 1,060 feet to west line and 160 feet to north line, is rigging up. Houston Oil Co.'s No. 4-D Benavides, Survey 753, Block 13, located 160 feet to south and 822.5 feet to east line, is location; No. 15-D Benavides, Survey 753, Block 12, located 662 feet to south line and 160 feet to west line, has sand at 2,331-32 feet and is setting casing; No. 17-D Benavides, Survey 753, Block 5, located 160 feet to south and west lines, is location. Magnolia Petroleum Co.'s No. 10 Valdez, Survey 754, Block 16, located 150 feet to south line and 1,150 feet to west line, has sand at 2,333-44 feet and running tubing; No. 12 Valdez, Survey 754, Block 16, located 750 feet to south and 650 feet to west line, is moving on.

Jennings Oil Field—Zapata

O. W. Killam's No. 5 Cuellar, Cerrito Blanco grant, 1,000 feet to the southeast lines and 670 feet to the southwest lines of 160-acre Cuellar tract, is drilling at 950 feet; No. 6 Cuellar, same tract, has derrick up, 700 feet to northwest lines and 800 feet to the southwest lines. South Texas Production Co.'s No. 1 Jennings, Cerrito Blanco grant, 8,890 feet to southwest lines and 8,750 feet to southeast lines, is drilling at 840 feet. Killam-Duggan's No. 3 Cuellar, Cuellar tract, 3,037 feet to northeast lines and 3,300 feet to the northwest lines, at 2,410 feet total depth has plugged back to 1,459 feet, casing set at 1,438 feet to make test in sand at that depth.

Somerset Field—Atascosa

Witherspoon Oil Co.'s No. 1 Pue is drilling at 800 feet.

Roxana-Larremore—Caldwell

Roxana Petroleum Corp.'s No. 1 Wilms, Cornelius Crenshaw Survey, 150 feet to north and west lines, is location.

Luling Field

M. W. Koening's No. 7 Tiller, John Henry Survey, 300 feet east of No. 6, at 2,108 feet in the Edwards will test in Austin before completing in the Edwards. Magnolia Petroleum Co.'s No. 13 W. J. Tiller, John Henry Survey, 150 feet to southwest lines and 450 feet to southeast lines, is drilling at 2,112 feet; No. 8 W. Branyon, Nancy Reaville Survey, southeast corner, is drilling at 2,168 feet.

Joe Bruner Field

Pat Armstrong's No. 1 E. Martin, A. Floyd Survey, 150 feet to northeast lines and 410 feet to southeast lines, is waiting on casing at 2,680 feet. Abercrombie & Co.'s No. 1 Lida Moses, A. Floyd Survey, 150 feet to north and west lines, is drilling at 2,325 feet, chalk topped at 2,286 feet. Carl Brothers-Suttle's No. 1 C. W. Malone, A. Floyd Survey, 150 feet to northwest and northeast lines, at 2,554 feet is cleaning out to deepen to the Edwards. Cranfill & Reynolds' No. 1 W. L. Smith, A. Floyd Survey, 150 feet to south and west lines, is drilling at 1,500 feet. Date Oil Co.'s (Tackleberry) No. 1 W. W. Hickman, Gerren Hinds Survey, has been spudded in. Golden West Oil Co.'s No. 1 Cook, A. Floyd Survey, 480 feet to northeast lines and 170 feet to northwest lines, is standing at 2,226 feet; No. 2 Joseph Wilson, A. Floyd Survey, 150 feet to northwest and northeast lines, at 2,717 feet is plugging back with lead wool to shut out water; No. 3 Wilson, A. Floyd Survey, 450 feet to northwest lines and 150 feet to southwest lines, at 2,645 feet is pumping 220 bbls. of oil daily free from water. T. C. Hadley's No. 1 Tiller, Gerren Hinds Survey, cored Edwards at 2,828 feet; No. 2 Wilson, J. Radford Survey, is standing at 2,800 feet. M. S. Holladay's (J. T. Barlow) No. 1 Bouldin, 4 miles northeast of Luling, at 3,070 feet is shut down.

Larson-Walsh's No. 1 Fred Watson, Solomon Seal Survey, 150 feet to northeast and southeast lines, at 2,749 feet is rigging up with standard equipment to pump. Lutex Oil, Inc.'s No. 2 Wilson, A. Floyd Survey, 150 feet to northwest and northeast lines, at 2,719 feet cored into sulphur water, plugged back with lead wool and is making sulphur and salt water with very little oil; No. 3 Frank Davis, A. Floyd Survey, 150 feet to northeast and southeast lines, is rigging up; No. 4 Davis, A. Floyd Survey, 300 feet west of No. 1 Davis, discovery well, is location. Luling Oil & Gas Co.'s No. 3 Carter, Gerren Hinds Survey, 300 feet north of No. 1 Carter, at 2,770 feet is setting liner. Plum Creek Oil Co.'s No. 1 E. L. Mayton, Hector McNeil Survey, in center of survey, at 240 feet set surface casing and is standing. H. C. Ratcliffe and others' No. 1 Cora Malone, A. Floyd Survey, 150 feet to north and west lines, at 2,302 feet is in top of chalk. Sun Oil Co.'s No. 2 Malone, A Floyd Survey, 300 feet northwest of No. 1 and 150 feet to southwest lines of tract, topped chalk 2,277 feet and is drilling in Buda at 2,452 feet. M. K. Towns' No. 1 W. W. Hickman, Gerren Hinds Survey, 150 feet to north and west lines, is drilling at 2,716 feet in the Edwards topped at 2,694 feet.

Lockhart Area

Pat Armstrong's No. 1 Heidenheimer, John R. Miller Survey, located 450 feet to north line and 150 feet to east line, is building derrick.

Luling Field—Guadalupe

A. B. A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet for repairs on boilers. Magnolia Petroleum Co.'s No. 7 J. M. Roberts, Harriett Cottle Survey, 150 feet to southwest and southeast lines, is drilling at 100 feet; No. 4 N. J. Carter, H. Cottle Survey, 150 feet to northwest and northeast lines, is drilling at 2,108 feet.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4-B Dennett, Section 38, Lot 19, located 436 feet to south line and 675 feet to east line, has sand at 2,637 feet and set casing; No. 4 Flato, Section 40, Lot 10, located 250 feet to east line and 450 feet to north line, at 2,790 feet is drilling and will set casing to test expected sand at about 2,928 feet.

Three Rivers—Live Oak

W. J. Walton's No. 3 C. H. Wedding, 300 feet west of No. 2, at 1,578 feet is coring a sand.

Agua Dulce Field—Nueces

Alexander and others' No. 1 J. J. Eliff has spudded in and set surface casing; No. 2 J. J. Eliff is location. Davis, Horn and others' No. 1 Thomas Rayland, Manton & Briggs Subdivision, SW cor., Lot 13, has set surface casing at 416 feet. Agua Dulce Oil & Gas Co.'s No. 1 John O. Sponberg, George H. Paul Subdivision, SW SW, Section 87, at 2,029 feet has set casing at 2,022 feet after showing gas on drill stem test. Houston Oil-Sun Oil Co.'s No. 1 Talbert, Survey 2, Block 5, located 1,139 feet to north line and 155 feet to west line, at 2,018 feet showed gas on drill stem test and is setting casing. R. & G. Corp.'s No. 1 Ed Allen, Section 6, NW cor., Section 6, Ross Peters Subdivision,

is drilling at 2,100 feet; No. 1 H. G. Yakey, Richard King Survey, SW cor., Section 37, is location; No. 1 Bessie Kerr, is location in NE cor., Section 36.

Saxet Gas Field

Saxet Gas Co.'s No. 4 Weil has derrick up and is moving in tools; No. 5 Dunn is location 1,500 feet southwest of No. 1 Dunn, discovery gas well.

Refugio Gas Field—Refugio

Benedum & Trees' No. 2 Claude Heard, Block 1, C. Heard Survey, 300 feet west of No. 1, has spudded in; No. 3 Claude Heard, 300 feet south of No. 1, has spudded in. Houston Oil Co.'s No. 9 F. B. Rooke, T. Mullen Survey, 150 feet to south and east lines, is rigging up; No. 10 F. B. Rooke, same survey, about 2,000 feet northwest of discovery oil well, is rigging up; No. 11 F. B. Rooke, T. Mullen Survey, 150 feet to east lines and 350 feet to south lines, is rigging up; No. 4 Wilson Heard at 4,992 feet has set casing. Houston Gulf Gas Co.'s No. 3 Rea is location in Block 5. W. L. Pearson's No. 1 Mitchell, 600 feet north of Refugio town lots, and 250 feet west of Goliad Road is drilling at 3,600 feet. Pat Rutherford and W. L. Pearson's No. 1 J. M. O'Brien, is drilling at 4,300 feet, sand at 4,200 feet carried water.

SOUTHWEST WILDCATS

(Continued from Page 56)

No. 1 Callaghan, Survey 440, located 166 feet to the south line and 1,482 feet to the east line, tested dry at 820 feet and is drilling at 825 feet. Baku Oil Co.'s No. 1 A. M. Bruni, Survey 735, Block 7, located 450 feet to the north line and 150 feet to the east line, is drilling at 1,000 feet. O. W. Killam's No. 5 Billings, Survey 712, located 1,780 feet to the north line and 2,548 feet to the west line, is drilling at 1,900 feet. Suladie and others' No. 1 Neal, Survey 1,008, located 2,490 feet to the south line and 150 feet to the east line, is location. Callaghan Land & Pastoral Co.'s No. 3 Callaghan, Survey 440, located 2,144 feet to the south line and 1,482 feet to the east line, is moving on.

Duval County

National Oil Co.'s No. 2 Ball, 300 feet to north and west lines of Block 5 of Subdivision of Ball ranch, has derrick up.

Starr County

The Texas Company's No. 1 H. A. Russell (No. 1 Ofelia Resendez in Block 174), Porcion 69, 150 feet to south and east lines of block, is drilling at 816 feet.

Zapata County

National Oil Co.'s No.1 Don B. Adams, located C N half Section 11, Block 4, subdivision of Don B. Adams ranch, is moving in machinery.

Bastrop County

Cranfill & Reynolds' No. 1 A. Yost, A. Garcia Survey, 710 varas to northwest lines and 580 varas to northeast lines, at 1,598 feet in Serpentine topped at 1,480 feet is estimated a 75-bbl. well having made 178 bbls. the first 10 hours. Gypsy Producing Co.'s No. 1 Lottman estate, east of Bastrop, is shut down at 2,146 feet. A. A. Loomis is making location in the John W. Bunton Survey. Col. Billy Mayfield's No. 1 McColl, Stephen B. Austin Survey, 450 feet south of river and 750 feet to east line of farm, is deepening from 592 feet. John Storey's No. 1 Ed Pendergrass, J. B. Blalock Survey, center of tract, is moving in machinery.

Bexar County

F. H. Eckert's No. 2 Dobrowolski, Section 4, Block 52, located 300 feet north of No. 1, is location. Humble Oil & Refining Co.'s No. 1 D. & A. Oppenheimer, 450 feet east of Pleasanton Road, 750 feet to south line of tract, is in shale at 1,050 feet and drilling. Marland Oil-Sun Oil Co.'s No. 1 J. B. Stewart, Manuel Monjarias Survey, 200 feet northeast and southeast of east corner of E. B. Simmons farm, is drilling at 2,440 feet.

Bee County

Hurador Oil Co.'s (D. Hewitt) No. 1 G. A. Ray, Pierce Miller Survey, at 2,837 feet (depth corrected) run tubing and when shut in 24 hours builds up 500 pounds rock pressure which blows off in about 30 minutes, shows trace of oil and blows considerable oil.

Blanco County

C. W. Bates' No. 1 Herman Massey, Henry Manton Survey, 920 feet to north line and 660 feet to east line, is shut down at 214 feet. Robert Rodson's No. 1 Glasscock, Survey 50, located 150 feet to CNL, is drilling at 928 feet in sandstone.

Caldwell County

Fred Adams' No. 1 Burney, Gideon Pace Survey, moving in the machinery. Bartlett Brothers' No. 1 C. N. Martindale, William G. Steffey Survey, 490 feet to northeast lines and 972 feet to northwest lines, is drilling at 1,352 feet. John V. Edwards' No. 1 W. C. Caldwell, Cornelius Crenshaw Survey, 300 feet to east line and 600 feet to south line, is moving in machinery. Lonnie Glasscock's No. 1, Pablo Martinez Survey, 600 feet northwest of discovery well, is drilling. Russell-Hill's No. 1 Hill, McCullough Survey, is drilling at 175 feet. The Texas Company's No. 1 D. T. Lackey, George W. James Survey, 880 feet to southeast lines and 450 feet to southwest lines, is location.

Comal County

George Kruger's No. 1 Uecker, A. Gaytean Survey No. 198, is in SE cor., drilling at 100 feet.

Colorado County

National Oil Co.'s No. 1 H. T. Brandt, Freeman Pettus League, 150 feet to south line and 1,000 feet west of the highway, is location.

Dimmitt County

G. W. Morgan's No. 3 City National Bank, Section 25, is location 600 feet east of No. 1.

Edwards County

McMann Oil & Gas Co.'s No. 1-B Walter Schreiner, H.E.&W.T. R.R. Survey, Section 50, Block F, 330 feet to south and east lines, is shut down at 2,130 feet. Gail Oil Co.'s No. 1 Neal Jergin (formerly Segale Oil Co.), G.C.& S.F. R.R. Survey No. 2, located 1,000 feet to north line and 740 feet to east line, is setting casing at approximately 2,000 feet.

Frio County

Pilgrim Oil Co.'s No. 2 Blackaller, James Gouley Survey, at 3,218 feet is waiting on rock bit.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon League No. 5, 250 varas to north line of league and little west of the center, is drilling at 1,940 feet. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams League No. 1, located 300 feet to north and east lines of farm, is rigged up. R. E. Phalon's No. 1 Cervenka, Fayette County School Lands, 450 feet to south line and 150 feet to east line of tract, is drilling at 2,502 feet with little poison gas at 2,461-68 feet.

Goliad County

J. E. Alexander's No. 1 Campbell, Goliad Survey, Block 7, 315 feet to north line and 327 feet to east line, is shut down at 825 feet.

Gonzales County

Alexander & Smith's No. 1 Billings, G. Gwinn Survey, NE cor., is location. Joe Bruner's No. 1 R. D. and J. C. Miller, Richard Heath Survey, has been spudded in. Dunning & Pierce's No. 1 Mrs. Mattie Keepers, R. Ward Survey, is shut down at 203 feet. W. D. Flynn's No. 1 Wilhausen, S. Bateman Survey, is drilling at 4,800 feet. W. G. Malone's No. 1 Mrs. D. G. Staton, J. M. Salinas Survey, 375 feet to southwest lines and 1,275 feet to northwest lines, is shut down at 400 feet. George Sullivan's No. 1 Norwood, Winslow Turner Survey No. 3, located 2,080 feet to northeast lines and 2,410 feet to northwest lines, is shut down at 705 feet. The Texas Company's No. 2 Bateman, A. Zumwalt Survey, southwest of Ottine, is drilling at 250 feet. L. P. Unkel's No. 1 Lumm & Bouldin, R. Ward Survey, Block 10, located 570 feet to CSL, is shut down at 380 feet.

Guadalupe County

Brodie and others' No. 1 B. B. Dix, Ira Nash Survey, 610 feet to north of road and 320 feet to east line, has der-

BEGINNING

NOV. 15th

First Sailing of DIRECT Service from Gulf Ports to South American Oil Field Ports

Direct Service from Texas ports to

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Due Houston Nov. 20, sailing Dec. 1; due New Orleans Dec. 3, sailing Dec. 5.

Announcement of the inauguration of this new direct shipment service has already caused much favorable comment from those manufacturing for the oil industry. These sailings direct from Port Houston and other Gulf ports to La Guayra, Puerto Cabello, Curacao, Maracaibo (without trans-shipment) Puerto Colombia and Cartagena mean a saving of time and in many instances a saving of rail freight rates. To better serve your customers investigate this DIRECT shipping service.

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NORRIS BROTHERS, Inc.

Robinson, Ill. Fort Worth, Texas

Owensboro, Ky.

rick up and rig moving in. J. J. Christie's No. 1 Taylor Thomas, Gustavus Chotwell Survey, 1,100 feet to southwest lines and 1,130 feet to southeast lines, is drilling at 923 feet. T. H. Poole's No. 1 C. Woehler, John King Survey, 310 feet to north line and 210 feet to east line, is rigged up and standing.

Hays County

Estess-Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 285 feet to northwest lines, is standing at 804 feet.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance, John McHenry Survey, 720 varas to northwest lines and 3,700 varas to southwest lines, is drilling at 3,010 feet. The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, located 5,108 feet to south line and 150 feet to west line, is drilling at 2,561 feet. Wright Brothers' No. 2 Classen, 1,500 feet north 10 degrees west of No. 1, is drilling at 3,185 feet; No. 7-A Drushell, T. Rodriguez Survey, 900 feet to east of No. 3, is drilling at 3,140 feet.

Jim Wells County

Cushing Oil & Gas Co.'s No. 2 M. Perez, La Tinaja de Lara grant, 4,319 feet to west line and 455 feet to north line, is drilling in gumbo at 2,200 feet.

Karnes County

Frank M. Swacker's No. 1 Butler is drilling at 375 feet with 200 feet of surface casing set.

Kinney County

Mardon Oil Co.'s No. 1 Jim Clamp, Survey 346, Section 1,492, located 5,360 feet to west line and 5,675 feet to south line, is at 1,973 feet where well bailed 1½ bbls. of oil daily; will shoot and if it fails to make a producer will drill to the Edwards.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio ranch, Section 7, A. Rivas Survey, is location in NE cor. Rycade Oil Corp.'s No. 3 Chittim is location; No. 3 Sullivan, Section 71, Block 7, is drilling at 3,750 feet; No. 2 Chittim, Section 158, Block 7, is drilling at 7,400 feet.

Medina County

California-Medina's No. 1 Rothe, Survey 1,012, at 3,278 feet, has milled out bailer and is on the bottom. Carl G. Cromwell's No. 1 Taylor, Survey 135, Block 28, located 210 feet to north line and 155 feet to east line, is shut down at 350 feet. Donaldson Oil Development Co.'s No. 1 Adams, Joseph Hillemeyer Survey, is location 160 feet to east line and 1,227 feet to south line. Holt & Cromwell's No. 1 Mott, Survey 1,267, is location 2,250 feet to east line and 4,182 feet to south line; No. 1 Henry Batot, 4 miles southwest of Hondo, is shut down at 400 feet. Milton & Webster's No. 1 Crabtree, 1 mile west of Hondo, is drilling in. North & South Development Co.'s No. 1 Charles Nehr, Survey 441, D. G. Burnett, 150 feet to south line and 7,479 feet to east line, has spudded in and set surface casing. W. R. Painter's No. 1 Muennink, H. Castro Survey No. 367, is to be shot at 857 feet.

Nueces County

Nueces River Basin Development Co.'s No. 1 Allen, G. Farrier Survey, 1,596 feet to south line and 474 feet to west line, is to set casing to test gas sand at 2,717-25 feet.

Refugio County

Dunlap & Wilkinson's No. 1 Rooke, 1 mile north of Arkansas River, 700 feet west of railroad and 10 miles south of Refugio gas field, is standing at 2,750 feet. J. M. Davis and Tom Horn's No. 1 Howard, Section 8, located 600 feet to north line and 2,640 feet to east line, has set and cemented surface casing at 417 feet and is standing.

Uvalde County

Pure Oil Co.'s No. 1 J. D. Smythe, Survey 687, located 740 feet north and 146 feet east of SE cor. of Survey 20, is drilling at 4,608 feet in shale.

KANSAS FIELDS

(Continued from Page 52)

14-22-11, is drilling at 600 feet. C. B. Christy's No. 1 Peterson, SE cor. NW SE, Section 24-24-9, is rigging up. Nelson, Kimmett and others moved the rig out for No. 1 Claycomb, NE cor. Section 1-25-8. Mohawk Oil Co. made location for No. 4 Grunay, SW cor. SE NW, Section 7-27-11.

Pryor & Lockhart's No. 2 Winzler, SE cor. SW NW, Section 29-22-13, was completed for 60 bbls. in sand at 1,656-87 feet. McGinnis and others' No. 1 Robbins, NE cor. NW, Section 16-24-9, is dry and abandoned at 2,550 feet. Bisango Brothers, No. 1 Gilroy, SE cor. SW NW, Section 5-25-13, has been completed for 1,000,000 feet of gas in sand at 1,482-1,534 feet. Bendge & Bandeventer's No. 1 Sanders, SE cor. NE NE, Section 5-28-11, has been abandoned at 1,685 feet.

Sedgwick County

Mary Jane Oil Co. has built the rig for No. 1 Fitch, NW cor. SE SW, Section 6-26-1. Shawver and others moved the rig out for No. 1 Broers, NE cor. SE, Section 5-26-2. Barnsdall Oil Co. made location for No. 1 Means, NW cor. SW, Section 34-27-2.

EAST CENTRAL TEXAS OPERATIONS ROUTINE

By Neil Williams

CORSICANA, Tex., Nov. 10.—Only routine drilling marked operations in the East Central Texas district the past week, and as has been the case for several weeks only Boggy Creek Dome was active in even drilling. At present there are only around a half dozen rigs drilling in the entire district outside of Boggy Creek.

At Boggy Creek, on the Anderson-Cherokee County line, four tests have reached the Austin chalk, where casing is set. The latest of these is Humble Oil & Refining Co.'s No. 1 Guaranty State Bank on the northwest flank of the dome. This test Saturday was drilling at 4,110 feet. The chalk in this test was found from 1,100 to 1,200 feet lower than in wells on the southeast flank, where the major production has been developed in sands from 800 to 1,000 feet below the chalk. So far no production has been found on the northwest side of the dome.

On the productive southeast side of the dome, Humble's No. 2 Holloway Saturday was nearing the interesting depth. It was drilling at 3,475 feet. Its No. 1 Todd, a rank wildcat on the south side of the dome, was drilling at 2,960 feet after having casing cemented on the chalk at 2,923 feet. No. 2 Lizzie Smith was to drill out surface casing plug at 1,480 feet. A location has been made on this side for No. 4 Mandalstam.

On the northeast flank, Humble Oil & Refining Co.'s No. 3 Weinberg Saturday was drilling chalk at 3,025 feet.

Daily average production, week ending November 10:

East Central Texas

Boggy Creek	1,982
Cedar Creek	255
Currie	521
Mexia	6,498
Minerva	740
Nigger Creek	475
Powell	9,877
Richland	469
Thrall	35
Wortham	1,573
Total	22,418
Total last week	21,834
Increase	584

RECORD MOTOR PRODUCTION

The National Automobile Chamber of Commerce announces that production of cars and trucks during the first 10 months of 1928 reached 4,068,727, surpassing all previous marks for a corresponding period. The report showed that the previous high mark for the first 10 months was set in 1926, when 4,062,110 cars and trucks were turned out.

OIL IN MARTINIQUE

Slight traces of oil have been reported at a depth of 60 meters in the test well drilled near Vauclin, Martinique. Drilling is to be continued, but is not expected to reach a point where definite conclusion can be established for several months.

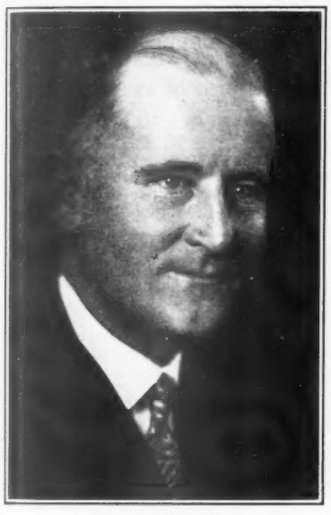
MID-CONTINENT ASSN. TEXAS DIVISION ELECTS

HOUSTON, Tex., Nov. 10.—Between 75 and 100 members of the Texas division of the Mid-Continent Oil & Gas Association gathered at Houston for their annual business and fellowship meeting.

John F. O'Donohoe of Wichita Falls was re-elected president as were the following officers: Vice presidents, Edward T. Moore, Dallas; H. E. Bell, Abilene; W. A. Monerief, Fort Worth; John R. Suman, Houston, and Levi Smith, Texon; treasurer, W. M. Massie, Fort Worth, and secretary, J. P. Laney. R. W. Pack was elected a vice president to succeed L. J. Black.

The association voted to hold its next annual meeting at San Angelo, Tex.

R. S. Sterling, highway commissioner and former oil operator, explained his proposed bond plan for the development



John F. O'Donohoe

of good roads in Texas, following remarks by J. S. Bridwell of Wichita Falls who had urged the oil men to get together in a move to build good roads to facilitate oil development.

A committee was authorized to make recommendations at the next meeting for changes in the by-laws substituting a board of a few directors to replace the present lengthy directorate. Directors elected Friday were:

W. N. Alexander, Continental Oil Co. of Texas, Wichita Falls; K. C. Baker, United North & South Development Co., Luling; L. E. Barrows, The Texas Company, Fort Worth; H. E. Bell, Moutray Oil Co., Abilene; L. J. Black, Beaumont; E. H. Blum, Atlantic Oil Producing Co., Dallas; J. S. Bridwell, Bridwell Oil Co., Wichita Falls; E. H. Buckner, Houston Oil Co. of Texas, Houston; C. C. Cartwright, National Supply Co., Fort Worth; J. M Charlton, California Co., Dallas; W. D. Cline, Wichita Falls; Midwest Exploration Co., Amarillo.

J. D. Collett, Fort Worth; T. B. Cranfill, Cranfill Brothers Oil Co., Dallas; R. A. Crawford, Lone Star Gas Co., Dallas; John Crotty, Republic Supply Co., Houston; Frank Cullinan, Republic Production Co., Dallas; Sinclair Oil & Gas Co., Fort Worth; F. W. DeWolf, Louisiana Land & Exploration Co., Houston; Jack Dies, Humble Oil & Refining Co., Houston; R. L. Dudley, Houston; R. O. Dulaney, Fort Ring Oil & Gas Co., Fort Worth; E. H. Eddleman, Wichita Falls.

F. V. Faulkner, Magnolia Petroleum Co., Dallas; Charles Fitzgerald, Pure Oil Pipe Line Co. of Texas, Dallas; W. H. Francis, Magnolia Petroleum Co., Dallas; W. B. Hamilton, Wichita Falls; Harry C. Hanszen, Houston; Marland Companies, Ponca City, Okla.; W. M. Harrison, Star Refining & Producing Co., Fort Worth; R. S. Haseltine, Guiberson Corp., Dallas; Harry Hines, Wichita Falls.

T. B. Hoffer, Hoffer Oil Corp., Fort Worth; J. K. Hughes, J. K. Hughes Developing Co., Mexia; James Hutcheson, Rio Bravo Oil Co., Houston; J. H. Jenkins, Tidal Oil Co., Fort Worth; Roy B. Jones, Panhandle Refining Co., Wichita Falls; C. F. Kelsey, Fort Worth.

J. A. Kemp, Wichita Falls; Fred M. Lege, Jr., Magnolia Gas Co., Dallas; J. F. Lucey, Lucey Petroleum Co., Dallas; J. B. McCabe, Municipal Gas Co., Dallas; R. F. Baker, The Texas Company, Fort Worth; C. B. McKinney, Houston Pipe Line Co., Houston; J. L. McMahon, The Texas Company, Wichita Falls; H. E. Marsh, Amerada Petroleum Corp., Fort Worth; W. M. Massie, Fort Worth National Bank, Fort Worth; W. R. Mitchell, MacPherson Construction Co., Fort Worth; W. A. Monerief, Fort Worth.

Adrian Moore, Rycade Oil Corp., Houston; Edward T. Moore, Simms Oil Co., Dallas; H. J. Morlang, Oil Well Supply Co., Fort Worth; J. M. Mouser, Prairie Oil & Gas Co., Eastland; Underwood Nazro, Gulf Production Co., Houston; John F. O'Donohoe, Petroleum Producers Co., Wichita Falls; J. Edgar Marston, Fort Worth; T. T. Pendleton, Roeser & Pendleton, Fort Worth; Robert R. Penn, Dallas; J. Edgar Pew, Sun Oil Co., Dallas; D. C. Proctor, Gulf Production Co., Fort Worth; W. B. Pyron, Gulf Production Co., Fort Worth; Woodall Rodgers, Dixie Oil Co., Dallas; J. D. Sandefer, Breckenridge; Pandem Oil Co., Wichita Falls.

Frank M. Smith, Oriental Oil Co., Dallas; Levi Smith, Big Lake Oil Co., Texon; B. S. SoRelle, Pure Oil Co., Fort Worth; John R. Suman, Humble Oil & Refining Co., Houston; W. B. Sutton, Vacuum Oil Co., Houston; F. L. Thomson, Grayburg Oil Co., San Antonio; Humble Oil & Refining Co., Houston; Joseph M. Weaver, States Oil Corp., Eastland; J. C. Wilson, Wilson-Broach Co., Beaumont; C. A. Young, American Petroleum Institute, Dallas; Mel Shugert, Sinclair Oil & Gas Co., Fort Worth; D. J. Moran, Marland Oil Co., Ponca City, Okla.; Sheldon Hardin, Southern Crude Oil Producing Co., Fort Worth; F. J. Adams, Gulf Producing Co., Fort Worth; Arch Bowman, Humble Oil & Refining Co., Houston; Charles McGahey, Wichita Falls; F. M. Yount, Yount Lee Oil Co., Beaumont; W. M. Irish III, Atlantic Oil Producing Co., Dallas; W. P. Gage, Tridex Corp., Dallas; Angus McLeod, Roxana Petroleum Corp., Dallas; Warner Clark, California Co., Dallas; Paul Wagner, Houston.

LEGAL

TRIBAL OSAGE OIL LEASES AT PUBLIC AUCTION, DECEMBER 11, 1928, BY UNITED STATES GOVERNMENT

December 11, 1928, at Pawhuska, Oklahoma, about 30,000 acres will be offered for oil leases in quarter section tracts. Bids will be for bonus in addition to royalties, 25% payable on day of sale, balance in three annual instalments, with acceptable security. Within advertised area there are about 9,870 wells producing from one barrel to 400 barrels each, the total daily production for August, 1928, being about 50,300 barrels; also, there are about 50 wells drilling. All lands are now leased separately for gas. Blue print maps of area advertised, showing tracts producing oil or gas, can be had for fifty cents each, also logs of producing oil or gas wells for twenty-five cents each well. Write U. S. Superintendent, Osage Agency, Pawhuska, Oklahoma, for maps, logs or other information.

ENGINEERING SCHOOLS GROW

Enrollments in 148 engineering schools in the United States have increased from 62,312 in 1926-27 to 65,520 in 1927-28. The Massachusetts Institute of Technology leads with an enrollment of 2,250 students; Purdue University is second with 2,226, and the University of Illinois ranks third with 1,820. According to the Bureau of Education, United States Department of the Interior, these engineering schools offer 41 courses. Twenty of these courses are some form of engineering, and 21 are allied subjects. Some of the enrollments in the 20 engineering courses including graduate students, follow: Electrical engineering, 20,210; civil, 14,073; mechanical, 11,273; chemical, 5,987; mining and metallurgy, 2,143; petroleum, 372; geological, 211; gas, 101; electro-chemical, 99.

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The new Pyle-National vapor proof fixtures for use with RLM porcelain enameled reflector are especially suited to the requirements of refinery lighting and other similar locations. The light is confined and directed by the reflector for maximum effectiveness without waste. All the security of the Pyle-National vapor proof globe and fitting is retained in this design.

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55,000-BBL. brand new tank, $5,000. 7—500-gallon, 3-compartment truck tanks. Only sample of many bargains.
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FOR SALE—1 No. 28 Star machine with calf wheels and 30 mast, 45 H. P. mounted boiler, plenty of tools, all in first class condition.
1—27 Star machine, mounted boiler, some tools, located in southeast Kansas. Address Box C-573, The Oil and Gas Journal, Tulsa, Okla.

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450′ 15½″ 70-lb. used casing.
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Above pipe was purchased new and used in one well.
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For sale, Wilson Refinery equipment, tanks, still, pumps, agitator, boiler and pipe and connections. Was running this year. In A-1 condition.
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1—40 H. P. Patten Bros. air compressor building and all equipment, located southeast Kans., address, Box C-601, The Oil and Gas Journal, Tulsa, Oklahoma.

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FOR SALE — Two Northwest Model 105 Gasoline Crawler Cranes; both in fine condition, one nearly new; reasonable. Box C-641, The Oil and Gas Journal, Tulsa, Okla.

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CLASSIFIED WANTS DEPT.

Furnace Oils in Demand at Chicago

Busiest Section of the Market. Gasoline Drops to 9¼ Cents, Second Reduction in Two Weeks. Kerosene Drags

By J. B. Waldo

CHICAGO, Nov. 12.—Monday was a quiet day in this market, as it was generally observed as Armistice Day. The larger refiners closed their offices all day, and many others closed at noon.

There was little in the early business in the way of an active demand. The price of U. S. Motor gasoline was reduced to 9¼ cents by the larger refiners, making the second decline in two weeks. Others sold at prices lower than the price quoted by the larger companies, and 9 cents was quite freely quoted to the dealers, while marketers were offered U. S. Motor gasoline at 8⅞ cents over the remainder of November. The demand was generally light for all gravities on Monday. Quite a number of inquiries were in the market from exporters, but local concerns were not securing the business as, for one thing, the California refiners were offering their material at a lower price at the Gulf ports than the laid-down price of Mid-Continent gasoline at these ports.

Kerosene continued to drag along with little dealer demand at unchanged prices.

The weather is still too warm for a good consumption of domestic burner oil, but there was something doing, and in today's local market the most active demand for any product was for the furnace oil list. The orders were mostly for single cars or small amounts, but there were quite a number of them. Larger distributors are still drawing on stocks.

Industrial fuels were inquired for by few and not for large volumes. No changes in quotations were made. The fuel market was fairly steady in tone at recent prices.

In looking around for a reason for the quietness which prevailed in the local spot gasoline market last week, several of the sellers attributed the lack of orders to a buyers' strike. There is no doubt that many of the country dealers are holding back on purchasing until the last minute but it is not a concerted action simply the result of a number of potent causes in the trade situation. Perhaps the most potent influence for small orders is the price tendency which even the most optimistic cannot claim is towards higher refinery prices.

Many sellers of gasoline, including a good number of refiners in the Mid-Continent Field were seeking the business of the distributers and there was considerable shading of prices from the 9½-cent price maintained by the larger refiners in the Group. One small refiner with a marketing organization sent out a general market letter offering U. S. Motor gasoline at 9 cents. This was widely circulated and possibly is the cause for so many dealers stating they could buy at 9 cents. Others stated they could purchase at 8¾ cents and one seller quoted a price of 8¾ cents on a 25 car order. At this writing the result from this offer is not known as the buyer has not placed the order. The tendency towards lower prices was helped both by the lack of business and by the action of the large Middle State organization which began the week by offering U. S. Motor gasoline at 9¼ cents.

Will Hold Quotations

Several of the larger refining organizations have stated through their local sales offices that they had no present intentions of reducing their quotation below 9½ cents nor would they sell for less even to meet responsible competition. They argue that if they did reduce their quotation one-quarter cent, the others who are now selling at 9 to 9¼ cents would simply begin selling at 8¾ to 9 cents and they would be forcing the price down and not increasing their spot sales by so doing unless they wanted to make a drastic cut. These refiners with their large list of contract customers are not as anxious for the small spot business that might be secured by lower prices as they are to maintain the price structure. Some smaller refiners who were active in seeking orders a month or three weeks ago dropped out of the market for a time having practically sold up for some weeks but they must be running short of immediate business as they are back in the market with prices adjusted to the new conditions as they find them, that is a smaller consumption and increased competition. There are also some reports of some accumulation of stocks of gasoline in the field and while they are not large they do have some influence on the refiners' outlook on business. Judging from past seasons now is the time to expect an increase in stocks of gasoline but it is to be hoped they will be held down rigidly to avoid that weakness in the market which has come so many seasons shortly after the beginning of the year. This weakness was wholly due to the accumulation of supplies much too early for the demand to materialize. The results are familiar to all watchers of market conditions.

The demand continued last week to be largely for the U. S. Motor grade and the greater part of the business was on contracts. Orders on contracts are coming right along and there is no trouble about the dealers not taking out their quotas. There was a little better demand for the higher gravities from the Northwest where they have had some early winter weather. Locally and over the greater part of this territory, there was no change in the demand for these grades. The weather with the single exception of election day has been rainy and cloudy and too warm for the season. Prices on these higher gravities are unchanged with the 64-66-375 end point rather hard to buy as many of the North Texas refiners are working on export orders which takes them out of the market until these orders are completed.

The situation in the differential districts to the east of this city is still bad according to reports received from men actually in the field. The same condition of extreme competition for business prevails. Several reports have been made of the activity of large eastern refiners in extending their distribution in Ohio and even in Eastern Indiana and Michigan. The Standard of New Jersey has been mentioned several times recently as purchasing stations even as far west as Illinois but there seems to be no foundation for such reports. The Standard of Louisiana which is a subsidiary of the New Jersey company has its subsidiaries in Ohio, one at Dayton which has been active in buying stations as far west as in Eastern Indiana. There have been many local dealers anxious to sell and some have been purchased. Sometimes it is hard to tell who is who and which is which.

Kerosene in Light Demand

Kerosene was in light demand last week and although there was some inquiry from exporters, the market has eased off. Some of the larger refiners are now selling their 41-43 kerosene at 5⅞ cents and quote this price. Other still quoting 6 cents will sell down to 5¾ cents to meet competition and there is plenty of kerosene available at the 5¾-cent price. The only reason some of the larger refiners have been able to sell at their quoted prices is that they get the gasoline business on contracts or through station control in some form and the kerosene orders come with the gasoline business. Dealers who are not tied up to a source of supply for their gasoline are shopping around for the lowest price not only on kerosene but on everything they buy. One large distributor in a near-by Illinois city stated to several last week that he had bought 10 cars of U. S. Motor gasoline with full specifications from a first-class Oklahoma refinery at 8½ cents and while the story was doubted no one felt sufficiently sure of his ground to deny the statement. Yet it does not seem good business for a refiner to sell at this price; it is not necessary.

Distillates in Demand

Distillates are gradually increasing in demand although the weather has not been cold enough generally to cause a large consumption. Some sections have had freezing weather for some days and the demand has been increased in such districts. The larger distributers are still drawing on their stocks which are ample for the present in most cases but the smaller trade is buying a car at a time as needed. On the high grade distillates the market is firm with an upward tendency according to refiners but there is some less desirable oil not quite up to the highest standard in some way, quite commonly in the odor. One large refiner reduced the price of its amber distillate to 3⅛ cents. It is a low flash, low cold test oil with a 37-40 gravity and rated as amber in color. Some of it is very dark. Some believe the distillate demand will be much greater this year, but some hold the demand is rather local and that the country over there is only about the same quantity being used as last year and that gas oil is with many dealers the favored product.

Gas Oil Quiet

The gas oil market has been rather quiet. Most of the monthly orders for November have been placed and considerable comment is made over the statement that quite a number of the gas companies secured their product at less than the 2¾-cent price that has been the low price for strictly U.G.I. gas oil. The cuts in price were small, some of the quotations being 2.3 cents or 2.35 cents against the regular 2¾ cents. Gas oil was bought occasionally at some shading of prices from some of the smaller refiners. The consumption of the U.G.I. gas oil is steady and nearing the peak. Gas companies as a rule are not drawing on their stocks but are buying as much or more than they consume. The zero gas oils have at least held their own. The dark oils used largely for industrial purposes and large burners in buildings are in good supply and steady in price. There are considerable quantities of this grade of oil coming from some of the Texas plants at prices below those made by Group 3 refiners. The drawback to this oil is the odor but for some uses this makes little difference. On the lighter color the demand is steady at former prices. Low cold test, low flash and low sulphur are all essential qualities. For these oils and the straw gas oils the demand will be larger with colder weather. According to statements made by refiners their recent shipments have been good and their stocks reduced. These oils are the product of the cracking stills and some refiners are reducing their runs of these stills while none have used them as much as they could have done since the peak of August. A real straw gas oil is actually hard to buy. The supply is limited and refiners are holding it for a better market which they expect will come with colder weather. The large local distributors are not purchasing freely but are using their stocks or drawing on contracts. In fact most of the business today is on contracts made some time ago. As most of these are simply "at the market price date of shipment" with minimum and maximum prices, the sales are really made at current prices.

Fuel Oils Dull

The fuel oil market was dull. Those buyers who place monthly orders around the first of the month as do many of the largest users of fuel had placed their November business. At the middle of the month there is usually quite a bit of period buying but in between the sellers depend for business on the smaller irregular buyers and on what business they can pick up. Some refiners were quoting the consumers direct and this always makes a close market. The trouble with the average refiner as a source of supply for fuel oil is that they are not steadily in the market. They are in and out according to their stocks. Quite commonly their plan is to hold their stocks until they are pressed for storage. They then sell and often will offer attractive prices. If the purchaser buys a quantity he may be able to wait until the refiner accumulates a further supply, if not either he or the refiner has to purchase from some other refiner to supply that consumer's wants. For this reason and others some of the best thinkers in the ranks of refiners have expressed themselves as believing that whatever might happen to gasoline there would always be a place in the business for the legitimate marketer of fuel oils able to carry his accounts and pay the refiner promptly for the material sold to his customers. The fuel oil marketer is also able to give a service to his customers owing to permanent and continuous occupation in his chosen field that few refiners have ever even attempted to give their fuel oil customers.

Much of the fuel oil market depends on the activity in the general industries. Industrial activities are increasing. The car loadings are breaking all records. The auto industry is experiencing the best fall season in its history. Retail trade the country over is substantially ahead of last year. All signs point to an active fall and winter business and under such conditions the demand for industrial fuel oil will be large. The consumption due to the use of fuel oil for heating is also to be increased materially. The offset to this picture is the heavy supplies of fuels both liquid and solid. The coal miners are now working but not securing the desired business. One state is starting drives against other states and competition for the industrial coal business is very active. The other reason is the present oversupply of the heavy fuel oils. There has been some slackening in the shipments of fuel oil recently or it has adopted new routes for the railroads complain they are getting little fuel oil shipments which if general can only indicate that users have supplies for their immediate needs.

Prices Unchanged

There was no large demand for fuel oils last week, just a routine rocking along with a fair total movement. The prices were unchanged, any variation being small and usually due to close sealing somewhere. A leading refiner was selling his heavy fuel with high sulphur content at 52½ to 55 cents to consumers and at 50 cents for resale. The range for this quality of heavy fuel oil was

(Continued on Page 163)

Steady Market in East Coast Areas

Gasoline Inclined to Softness, but No Further Price Reductions. Furnace Oil Sales Running Large

By Special Correspondent

NEW YORK, Nov. 12.—Steady markets for the major refined products predominated in East Coast territory this week. Gasoline was somewhat inclined to softness, but no further price reductions materialized, and instances of price cutting were few and far between. It appeared doubtful, however, that the 11-cent market could be maintained throughout the winter season, as some in the trade had hoped, as a result of the weakening market in Group 3 territory. Wax and petrolatum were working into firmer ground, and the lubricating oil situation had also undergone a change for the better. Furnace oil sales were running into large volume, with the advent of colder weather, and gas oil was also moving in a large way, with considerable contracting for next year in progress.

The advance in Pennsylvania crude oil prices this week, together with the reported strength in sweet crude in the Mid-Continent area, contributed to a general feeling of optimism in the refined products group, and it was felt that the markets in East Coast territory would go through the winter with a minimum of price disturbance, and go into the spring selling campaign next year in much better position than was the case during the early part of 1928. Principal refiners in this area have improved their position materially this year, and their businesses are now in sounder shape, with respect to production, sales, prices, and inventories, than for several years past.

Reports of break-downs in the crude oil curtailment program in some sections of the country, notably California, do not seem to have alarmed the trade in East Coast territory to any extent, it being generally felt that the leaders in the industry are in position to maintain the conservation policy until the industry as a whole is on a more stabilized basis. The market position on fuel oil, it is conceded, is about as bad as it could be, and as increased domestic crude production is mainly on the heavier oils it has little real effect upon the market for the more important refinery products.

Gasoline

Leading refiners are all adhering to the 11-cent price in this area, and report a fair amount of business moving at this figure. Cold weather in many sections of the East has tended to curtail motoring activities, however, and the markets are now entering the season of curtailed consumption of motor fuel. There are some reports in circulation regarding sales in the tank car market at 10¾ to 10⅞ cents, but shading of this sort is far from general as yet. Refiners realize that the current decline in consumption is largely a seasonal development, and with no possibility of stimulating consumption through lower prices see no need for any general price cuts. Of course, if the larger marketers should begin to shade the 11 cents basis, other refiners would be forced to meet this competition in order to hold their distributive outlets, but something of the kind may develop, paralleling the situation which prevailed a short time ago when the first price cut went into effect.

Gasoline production in this area is being curtailed somewhat, it is reported, although the extent of the easing off is not definitely known. With the crude oil market apparently on the upward move, in so far as the lighter oils are concerned, it is thought that many refiners will convert as much crude into gasoline as possible, in order to take advantage of present prices, and this is expected to be a factor in holding gasoline output at higher levels than would otherwise be the case.

California gasoline is offering on the spot position at 11 cents a gallon, the usual quarter to half cent differential over other U. S. Motor fuel having been wiped out, temporarily, at least. This situation gives the marketers handling California gasoline a good talking point, particularly with respect to the anti-knock and quick-starting qualities claimed for the California product, both of which are good sales arguments at this time of the year.

Export gasoline buying this week has centered largely at the Gulf, where the market has again advanced. Details appear in another part of this report.

Tank Wagon Gasoline

Marketers continue to quote U. S. Motor gasoline at 18 cents throughout the local territory. While consumption has eased off a little, refiners are still booking a fair volume of business. The situation is a healthy one, from the standpoint of the marketers. List prices are generally being adhered to by the marketers themselves and this condition is likewise true to a great extent of the retail distributors. An important factor in holding the retail market is seen in the growth of the company-owned stations in and around the metropolitan area. Most of the large oil companies now have their own chain filling station organizations in this territory, and are steadily expanding their activities in this direction. The era of cut-throat competition among the refiners has ended, and many filling station operators who were able to "get by" when the refiners, through rebates and other concessions, were giving them a 5, 6, or 7 cent margin on gasoline, find the going pretty rocky on the present 2 or 3 cent margin, and so have left the business. The companies themselves in many instances have taken over these stations. There are evidences that the trend toward the company-owned station will become more pronounced during the coming year. A number of the large oil companies in the East have been planning expansion of their own retail marketing activities for the past year or more, but because of the necessity of conserving all of their cash resources, were unable to launch their own chains. The improvement in the financial position of the principal Eastern companies this year is so marked that most of them are now in position to go ahead with expansion plans held in abeyance for some time past, and development of retail stations appears to be one of the most important of these plans.

Petrolatum

Demand for petrolatum has shown considerable expansion, and the market is working into stronger position on white grades. Cream petrolatum has advanced a quarter cent to 6½ cents a pound, with snow white showing a similar increase to 8½ cents and lily white a half cent higher at 7½ cents. The dark grades remain unchanged, but a firm undertone prevails.

Large consumers in the domestic pharmaceutical trades have been buying in large quantities, and this demand continues unabated. The pharmaceutical trade has become an increasingly important factor in petrolatum, with the great increase in the use of various "rubs" for the relief of colds during the winter season, and steady and material increases in petrolatum consumption may be traced to this division of the market. Current bookings indicate that the domestic demand for petrolatum may be expected to continue to run into heavy totals well into the first quarter of 1929, and refiners therefore are showing strong price views. Export buying has increased very materially, and this has likewise had a tendency to stiffen the market position. The higher price basis on eastern crudes during the past few months has also been a bullish factor.

There has been a fair buying movement on the lower grades of petrolatum for industrial uses, and indications point to continued activity in that direction. Reports from refineries indicate that stocks of petrolatum now on hand are by no means large, and refiners are not inclined to accept bids under the quoted price basis.

Paraffin Wax

A better inquiry for paraffin wax has featured the market during the week. Export demand was an important factor, having shown considerable improvement during the period. The spot market for 120-122 a.m.p. was an eighth cent higher at 5¾ cents a pound, with 130-132 a.m.p. quoted an eighth up at 6¾ cents. An inquiry for 400 tons of 125-127 a.m.p. for shipment to Europe was in the market, and another inquiry for 200 tons for shipment to South America was reported. The market on this grade was holding at 5⅞ cents on spot, but it was expected that if the export orders mentioned were filled the market would show increases of an eighth to a quarter cent per pound. Export operators have come into the market for wax in fair-sized quantities in good volume during the week, and it is evident that another real buying movement is in progress. Buyers for foreign markets have been operating hand-to-mouth for some time past, in expectation of a lower price basis on wax at refineries, but this expectation was not realized. On the contrary, it now appears like a higher market.

Increased buying on the part of the export trade has been paralleled by a broader buying movement on the part of domestic consumers. Many consumers who had permitted their stocks to run low in the belief that they could replace them at lower cost have discarded their low-price views and have come in to cover "at the market" on their immediate and near-by requirements.

Refiners are materially stronger in their price views this week. While booking in fair volume for prompt shipment at current going prices, they have been showing a marked disinclination to sell futures at present quotations. Production of wax at eastern refineries is reported on the decline, and with refinery stocks considerably smaller than those on hand a year ago, the refiners are looking for a higher price basis. The current spurt in buying is likewise regarded by refiners as a decidedly bullish development.

Reports received by operators here indicate that the market at the Gulf is strengthening in sympathy with the position in East Coast territory. At times during the past several weeks, considerable business has gone to the Gulf from this territory, buyers being in position to pick up small lots, ranging from 10 to 50 tons, at lower prices in the South than could be worked in the East Coast area. A good part of this buying was for the account of the export trade. The Gulf market has now worked up to about a parity with the East Coast basis, however, and the normal differential between the two points is thus being re-established.

Lubs

A firmer undertone has developed in lubs, but prices have shown no changes, and continue at the reductions put into effect during the previous week on cylinder stocks. Pennsylvania refiners booked some business at the reduced price basis, but apparently there was sufficient buying to absorb the off-priced offerings which were on the market, and with the weak holders cleared up, the market has reverted to the control of the stronger elements.

Export trading has picked up this week, and several large lots were reported booked for shipment abroad. Both South America and Europe have been taking lubs in good quantities, while African markets and Far Eastern buyers have also been active.

Buying on the part of the domestic trade is showing seasonal quiet at the moment. Compounders are covered on their immediate requirements, and are not stocking far in advance of actual needs. Large refiners with established distribution of package lubs are getting a good volume of business for this season of the year, but sales have naturally fallen away somewhat, due to the curtailment in motoring.

In connection with the filling station end of the business, it is interesting to note that there is apparently a marked trend toward 100 per cent Pennsylvania oils in many sections of the New York City territory. The lub oils of several of the larger Pennsylvania refiners, both bulk and cans, are seen in larger quantities and at more filling stations than ever before, and station operators report that there is a good demand from the motoring public for these oils. The blended oils of the larger companies, such as Vacuum, Tide-Water, Standard of New York, Texaco, Sinclair, and others continue to lead in volume by a very wide margin, however.

More inquiry for red and pale oils developed this week, following the price increase put into effect last week on several of these grades. Refiners were holding firm at the advanced price basis, and noted some increase in sales at the higher price levels, the mark-ups apparently having stimulated the trade's confidence in the position of these oils.

Fair activity continues in the industrial lubricating oil end of the business. The large refiners in this area are expected to start their 1929 selling campaigns early, and it is believed that considerable business in marine and railroad lubs will be booked by the end of the current month.

Kerosene

Water white kerosene was moving in good volume during the week, and the market remained firm at 9 cents per gallon in tank car lots, f.o.b. Bayonne refineries. Jobbers were drawing stocks in large quantities for immediate shipments, and considerable forward business was also reported on the books of refiners. Current stocks at the refineries in the East Coast area are adequate for the trade's requirements, although it is reported that some shipments are coming East from California. Prime white is available in fair quantities on the basis of 8¾ cents per gallon at refineries.

Export sales have held up well throughout the week, as is likewise true of the price basis. Standard white in cases is listed at 17.65 cents per gallon, with water white quoted at 18.90 cents. Bulk kerosene for export at East Coast terminals is quoted at 7¾ cents per gallon for prime white and 8¾ cents per gallon for water white. Several mixed cargoes of kerosene and gasoline have sold at the Gulf thus far in the month for shipment to Europe, while South America and the Far East have been buying kerosene for immediate shipment in rather liberal fashion.

Tank wagon kerosene sales are seasonably active, with the market ruling at

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Growth of Oils as Domestic Fuel

Consumption Increasing Steadily in Several Sections of United States. Demand Based on Superiority Over Other Fuels

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Oil has been used as a fuel in the heating of buildings in the United States for nearly 50 years, but its widespread utilization and its application to domestic heating are distinct developments of the latter half of the post-war period. On the Pacific Coast and in portions of the Middle West, oil has been used as a fuel for several decades, but along the Atlantic Coast, and particularly in the cities from Portland, Maine, to Washington, D. C., the most rapid strides have been made only within the past five or six years.

The first installations were made chiefly in existing boiler plants where coal had previously been burned. The experience thus gained established the possibilities of oil burning, and it has been given careful consideration by architects and builders in planning new structures. During the war period, building programs were suspended or postponed in order that material and labor might be diverted to strategically more important purposes. When the United States had recovered from the post-war depression of 1921, a national enthusiasm for building concentrated within a few years all of the construction which might ordinarily have been spread over a number of the preceding years.

During the period of suspended building, crude oil production in the United States increased from 335,000,000 bbls. in 1917 to 732,000,000 bbls. in 1923, with the result that an ample supply of oil was available coincident with the renewal of building activity. The inherent qualities of oil as a fuel in urban heating, coupled with the development of improved burners and definite sales stimulation by oil producers and burner manufacturers, resulted in a widespread adoption of oil as a fuel for commercial and domestic heating. Oil burning has been adopted in boiler plants of every type and size, from that of the central station, factory, office building, hotel, apartment house, hospital, theater and school, down to the smaller heating plants, such as used in the private home.

It has been estimated that 3 per cent of the total fuel oil produced in the United States during 1925 was used as fuel for heating homes and buildings. According to actual statistical information obtained through national surveys of fuel oil distribution, this percentage increased to 4.5 in 1926 and 5.3 in 1927.

The consumption of oil in commercial and domestic heating in the United States during 1927 was approximately 26,350,000 bbls. As it is difficult to comprehend the significance of such mathematical presentation, it might be said that this quantity of oil was the approximate equivalent of the 1927 crude oil production in Rumania and was equal approximately to the total fuel oil consumption in Great Britain during 1927, including the oil delivered to ships' bunkers.

Division of Consumption

Three groups of States, which may be described as the North Central, the North Atlantic and the Pacific Coast areas, consume virtually all of the oil which is burned within the United States for the heating of buildings. The following table shows the approximate quantity of oil consumed and the major regional distribution:

OIL CONSUMED FOR HEATING OF BUILDINGS IN UNITED STATES

Regional distribution—	Bbls.
North Atlantic states	11,300,000
Central states	10,100,000
Pacific Coast area	4,500,000
South Atlantic states	450,000
Total 1927 consumption	26,350,000
Estimated 1926 consumption	23,700,000

*World Power Fuel Conference, London, England.

Of the total oil consumption for heating of buildings, approximately 11,000,000 bbls. were consumed in the heating of residences and the balance, 15,350,000 bbls., in the heating of commercial structures. Although domestic oil heating is a development of the past few years, its rapid application is indicated by the following table showing annual estimated consumption:

OIL CONSUMPTION FOR DOMESTIC HEATING

Year—	Bbls.
1923-24 season	2,818,000
1924-25 season	5,021,000
1925-26 season	8,829,000
1926 calendar year	9,080,000
1927 calendar year	11,000,000

The normal heating season begins when daily mean temperature goes below 60 degrees Fahrenheit and ends when daily mean temperature goes above 60 degrees Fahrenheit. Based upon United States Weather Bureau records of the past 46 years, the normal heating season in New York City begins on October 10 and ends on May 10. The normal fuel requirements per month in per cent of total requirements for the heating season are shown in the following table:

MONTHLY NORMAL HEATING REQUIREMENTS—NEW YORK CITY

Month—	Per cent
October	3.5
November	11.0
December	19.0
January	21.0
February	20.0
March	16.0
April	8.0
May	1.5

California Situation

Being without commercial deposits of coal, early industries in California depended upon coal shipped from Australia, British Columbia and the State of Washington, while experiments were being carried on with the use of oil as fuel. Even as early as 1883, oil was burned as a fuel on the Pacific Coast in heating some of the larger hotels and office buildings. Through these early experiments, the problems of burning and storing were met successfully, and oil was being burned for various purposes when the Kern County discoveries in 1899 made available in California the additional supplies necessary for increased use.

In the North Central States, oil was burned as a fuel for a number of purposes, including the heating of buildings, prior to 1888, and also was used at the World's Columbian Exposition in Chicago in 1892 and 1893. The burning of oil as a fuel in this area undoubtedly was stimulated through the marketing of the fuel oil which was produced by the large refineries located on the Great Lakes. As the technical program of these refineries was altered to meet, through cracking, the increased demands for gasoline, the proportional output of fuel oil was decreased and the markets which had been developed were then supplied by the shipment of fuel oil in tank cars from the refineries in the Mid-Continent area.

The development of fuel oil markets in the North Atlantic States, including New England, is of more recent date than in the two other principal burning regions. The presence of large refineries in this area, coupled with the ease with which oil may be transported by tanker to shore communities, assured this region of an adequate oil supply. The cities of Boston and Providence were the first communities in this area to adopt oil burning. A few large residences in these two cities burned oil prior to the war, but these installations were exceptional in that 14-16 gravity oil was burned and they were manually operated by the caretaker. New York City was relatively slow in taking up the use of oil fuel, but after regulations making it possible to install plants were adopted about seven years ago, conversions from coal to oil went ahead with great rapidity. The nationally known Singer Building was first to adopt oil. In Boston, one of the first plants to change over from coal to oil was the Harvard Medical School power plant, which furnishes heat, light, power and refrigeration for a group of 34 hospital and college buildings. In Providence, R. I., virtually every building of prominence is burning oil. The real growth in oil burning in this area began about 1920.

Natural Gas Competition

Although oil is of adequate supply in the southern group of States, including Texas, Louisiana and Oklahoma, the equally adequate supply of natural gas in this region has resulted in the use of this fuel for industrial and commercial purposes, and oil burning at stationary plants has not been developed to the same degree as in some other sections of the United States. This, also, is true of southern California, where natural gas is a favored domestic fuel. In these two regions, however, oil is being burned as a fuel for mobile purposes, railroads and steamships, almost to the exclusion of other fuels. In the Pacific Northwest, where wood and sawmill waste have been the predominant domestic fuels, oil recently has been adopted, owing again to the adequacy of the California supply and the ease of shipment by tanker to seaports of the Pacific Northwest.

The use of fuel oil for industrial heating established the fact that oil offers opportunities for precise control, either automatic or manual, that could not be obtained with solid fuels. The cleanliness, lack of waste, freedom from smoke and soot, and the opportunities for applying automatic or semiautomatic control established the desirability of this fuel for commercial buildings. The subsequent application of these principles to automatic domestic oil-heating equipment was an obvious development.

Oil burning in the heating of buildings usually is divided into two classes, commercial and domestic, depending upon whether the operations are manual or automatic respectively. In other words, commercial burning requires the presence of an engineer, mechanic, or caretaker, while domestic burning may be entirely automatic or require only the occasional attention of the householder. Some of the larger residences in the United States are equipped with heating plants similar to those installed in small apartment houses and require the attention of an engineer. This type of residence heating virtually is identical with commercial heating.

Burner Design

Burners designed for house heating may be classed either as vaporizing, comprising the so-called gravity-feed type or atomizing, including those in which the oil is broken up by passing through a small orifice under pressure; by centrifugal force from the edge of a rapidly rotating cup or disc; or other equally effective methods.

The automatic operation of domestic oil burners depends upon control mechanisms, which will shut off the burner

REFINERS USE LESS COAL AND OIL AS FUEL AT PLANTS AND MORE COKE

A recently completed survey, made by the Bureau of Mines to determine the trend of fuel consumption at refineries in the United States, showed the following outstanding points: A decrease in the use of oil for fuel in 1927 of over 5,000,000 bbls., as compared with 1926; a decrease in the use of coal of over 1,000,000 short tons; small increases in the use of both natural gas and refinery gas; an increase in the use of petroleum coke.

The decrease in fuel-oil consumption was approximately 2,000,000 bbls. each in the Atlantic Coast, Texas and Louisiana-Arkansas districts, with an increase of 1,000,000 bbls. in the Indiana-Illinois district, or a net decrease of 5,000,000 bbls. The decrease in fuel-oil consumption by refineries in the Texas and Louisiana-Arkansas areas was offset largely by increased consumption of natural gas and refinery gas, whereas the increased consumption in the Indiana-Illinois region was more than offset by the decrease in coal consumption.

Use of Coal Declines

The use of coal for fuel declined from 6,052,000 short tons in 1926 to 5,031,000 short tons in 1927. Practically all of this decrease was recorded in the Appalachian and Indiana-Illinois districts, which at the same time showed the largest percentage increase in the use of oil for fuel. It is probable, therefore, that although coal prices also fell off, a considerable quantity of oil replaced coal in this area in 1927. In addition, the group of refineries, which are by location more or less definitely committed to the use of coal for fuel undoubtedly succeeded in saving a material amount of coal through the use of more efficient fueling methods.

A total of 130,815,000,000 cubic feet of natural gas was consumed for fuel at refineries in 1927. This represents an increase of 8 per cent over the 1926 total. Nearly all of this increase resulted from the opening of a line from the Monroe Field at Baton Rouge, La. Had this line not been opened, there would have been a decrease in the use of natural gas, as a number of districts, particularly the Rocky Mountain, reported decreases in its use.

The use of refinery or still gases for fuel did not change materially during 1927, there being a total of 52,807,000,000 cubic feet burned as compared with 52,077,000,000 cubic feet in 1926. Refinery gases are largely a product of cracking, and it was probably more than a coincidence that a few districts in which cracking slowed down in 1927 also reported less refinery gas used as fuel.

Pipe-Still Effects Economy

The Appalachian district again required a greater number of heat units per barrel of crude refined than any other district. The explanation of this fact undoubtedly lies in the large number of small refineries which were built in the days of "cheese-box" and shell stills before the present era of pipe-stills and heat exchangers; in the use for fuel of large quantities of coal, which ranks comparatively low in efficiency as used in the average Appalachian refinery; and to the fact that most of the crude produced in the Appalachian district is refined through the lubricant stage, and necessarily requires more fuel than simple skimming operations.

The only district to report a higher fuel requirement per barrel in 1927 was

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and again ignite the flame as required. Ignition of the flame may be accomplished by a gas pilot, an electric spark, a combination of electricity and gas, or occasionally by means of an oil torch.

The uniform fuel oil specifications of the American Burner Association classify fuel oils by numbers ranging from 1 to 6. Oil No. 1 is a light furnace oil, with an approximate gravity range from 36 to 45 degrees; oil No. 2 is a medium furnace oil, gravity ranging from 32 to 36 degrees; and oil No. 3 is a heavy furnace oil ranging from 28 to 32 degrees. These three oils are commonly used for domestic heating, as they do not require preheating and are susceptible to the fully automatic control, which is essential to the operation of an oil burner in a private home.

Oils Nos. 4, 5 and 6 are called fuel oil—light, medium and heavy, respectively, and range from 24 gravity to 12 gravity and heavier. They require heating because of their higher viscosity at normal temperatures and are used only in large commercial and industrial installations, where manual operation is desirable. This situation occurs in the larger office buildings, apartment houses and hotels, where a janitor or mechanic is on hand at all times to make the necessary adjustments and to start and stop the burners. The fuel oils are less expensive than the furnace oils, but the installation of heating equipment in the tanks and near the burners adds to the initial cost.

Furnace Oil No. 3, also, is known to the trade as a light fuel oil, intended for special industrial consumption where a high quality low viscosity fuel is required. This oil usually is sold to the domestic consumer at approximately 2 cents a gallon less than Furnace Oil No. 1, and most of the modern domestic oil burners have been designed to burn satisfactorily this grade of oil. A limited number of domestic oil burners are designed for the use of a 24 degree gravity fuel oil and some are restricted in their use to Oils Nos. 1 or 2. A definite trend is noticeable toward the heavier oils (28 to 32 degrees) both in the design and manufacture of oil burners and the resulting consumption of oils.

Earlier types of burners were objected to on a basis of odor, noise and lack of mechanical perfection. These objections have, in the main, been overcome, and burner manufacturers stress the features of silence and automatic operation in respect to their individual burners. The relative costs between oil and other fuels vary with each locality and can be considered only through an analysis of the factors affecting the individual instance. General statements with respect to relative costs are of little value. It is interesting to note in this respect that, despite the present low scale of fuel oil prices, constructive sales arguments are not based on relative costs, but upon the advantages or qualities which are inherent within the fuel.

REFINERS USE LESS COAL AND OIL AS FUEL

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the comparatively minor Louisiana Gulf Coast district. California and inland Texas were the leading districts from the standpoint of low fuel requirements, due primarily to the fact that little of the crude refined in these districts was carried beyond the skimming stage, although it is suggested also that weather conditions might have been a factor.

A large part of the credit for the success attending fuel economy in 1927 may be attributed to the pipe-still. This type of equipment has been in general use for but a short time, hence its effects on fuel consumption were perhaps not widely felt prior to 1927. In combination with heat-exchangers, the pipe-still enables the refiner to double or triple his throughput, often without appreciably raising fuel requirements.

Coke Utilization Increases

Refinery engineers have recently given much attention to the problem of devising a thoroughly satisfactory method of burning the increasing production of pressure-still coke. That some progress was made in 1927 would seem to be indicated by the fact that consumption at refineries increased from 408,000 short tons in 1926 to 450,000 short tons in 1927, the latter figure being equivalent to 40 per cent of the total output. Coke, particularly the type obtained by so-called dry distillation, makes a very superior fuel from point of heat units, but is one which requires constant mechanical supervision.

The problem of fuel economy continued to occupy the attention of many refinery engineers, and it was largely through their efforts that the fuel requirements in 1927 per barrel of crude refined were less than ever before. In order to arrive at this conclusion, the consumption of the various fuels was reduced to their B.t.u. equivalents and gave a total of 584,000,000,000,000 B.t.u. used in 1927 as compared with 630,000,000,000,000 B.t.u. in 1926. There were 779,264,000 and 828,380,000 bbls. of crude petroleum refined in the United States in 1926 and 1927, respectively; these amounts on division indicated a requirement per barrel of 809,000 B.t.u. in 1926 and 705,000 B.t.u. in 1927, a decrease of approximately 13 per cent.

STEADY MARKET IN EAST COAST AREAS

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15 cents per gallon throughout the New York and New England territory. Reports from New England market centers indicate a rather heavy movement, both in jobbing and tank wagon markets, kerosene heaters being much more in vogue "Down East" than is true of the New York market, where electric and gas heaters have replaced the old-time kerosene stoves in many instances.

Furnace Oil

Contract deliveries of furnace oil are picking up steadily, and as the winter season gets under way in earnest refiners look for a steady consuming demand to continue. Demand in this territory is taking in all grades, from the lighter fuel oils to the distillates. While the bulk of the current movement is on contracts booked during the summer and fall months, there is also a sizable volume of spot business reaching the refiners. Many large consumers covered only partially on a contract basis, in the belief that they might be able to make supplementary purchases on spot during the consuming season at more advantageous prices. The small householder, of course, does not fall within this category.

The number of jobbers handling fuel oil in this section of the country has shown an increase commensurate with the greater number of home oil heating units in operation. The large oil companies, however, have succeeded in corralling much of this new business direct through their own sales organizations. The tank trucks of the big companies are now familiar sights all over the metropolitan territory, particularly in the apartment house district, where they may be seen making deliveries at almost any hour of the day or night.

Fuel Oil

The situation with respect to Bunker "C" remains unaltered in this territory. Refiners quote $1.05 a barrel at refineries, and $1.10 a barrel barged alongside in the harbor. With practically all of the large steamship business under contract for 1929 and 1930, there is little of this business being done at the moment, although refiners are busy lining up their domestic fuel oil contracts for next year. Unlike the steamship contracts, which are booked at a more or less open price, the domestic industrial sales are generally at private contract, and the details do not always reach the market in ungarbled form. However, reports indicate that industrial buyers are being given contracts for their 1929 needs at very much lower prices than those set forth in the 1928 transactions.

Industrial consumption of fuel oil is running into large totals and refiners have heavy orders on their books for delivery over the balance of the year. While holdings of fuel oil at East Coast refineries remain large, refiners are divided in their opinions as to the probable price basis to rule after the first of the year. Some interests evidently fear that the market will have to be scaled downward, to meet the prices specified in the shipping board contracts which become effective January 1. Any such revision would carry the market under $1 a barrel, terminal basis.

Diesel Oil

Refiners have booked a substantial volume of Diesel oil business for 1929, at prices reported to be in line with the present basis of $2 per barrel, bulk, refinery terminals. Large consumers of this oil are materially enlarging their purchases of Diesel oil, and many new consumers are entering the market as more Diesel-electric drive vessels go into commission. For example, one large transatlantic fleet operator, which has used about 100,000 bbls. of Diesel oil during the current year, or rather will have used that quantity by the year-end, is reported to have contracted with a leading refiner for close to 150,000 bbls. of the fuel for delivery over 1929. Other large operators of Diesel-powered vessels have shown proportionate increases in their contract bookings.

East Coast refiners see nothing but promise in the Diesel oil situation. A number of large Diesel vessels are reported building in Europe, with numerous small vessels of this type under construction. In addition, Diesel-powered vessels have proved themselves to the satisfaction of American ship operators as well, and it is expected that much of the new tonnage to be constructed for service under the American flag will be so powered. The market for Diesel oil has been well controlled, and has escaped the demoralization which is so potent a factor in the Bunker "C" market, and which has carried prices sharply lower since the first of the year.

Gas Oil

The large gas companies operating in the metropolitan area are reported to have closed their contracts for their supply of gas oil for the coming year. The prices at which this business was booked were not disclosed, but it is understood to be rather close to the current market level. Owing to the rapid development of cracking operations in the East Coast area during the past few years, gas oil has become a more wanted commodity, notably during the summer months. The virtual boom in the oil-burning furnace market has tended to make this condition almost a year-around affair, and thus has put gas oil in a more prominent position.

Reports of current trading indicate a heavy movement in gas oil. Large industrial consumers have increased their takings to some extent, while larger quantities are moving into consumption as fuel for home heaters. The market ranges 4¾ to 5¼ cents per gallon, although in the majority of cases, 5 cents a gallon represents the inside quotation of representative sellers. Movement of California gas oil eastward has been light during recent weeks, but it is reported that fair quantities will be moved to the Atlantic Seaboard during the winter months to help take care of the furnace oil requirements of some refiners and marketers.

Exports

France has been the chief buyer in the export market this week, in so far as cargo business is concerned. A 9,000-ton cargo was reported closed at the Gulf, consisting of 6,000 tons of 64-66 gasoline, at a reported price of 11⅜ to 11½ cents, 2,000 tons of water white kerosene at 7¾ cents a gallon, and 1,000 tons of prime white at 6¾ cents a gallon. Two additional cargo inquiries were in the market, but had not been closed at last reports. One was for 9,000 tons, of which 8,000 tons was 64-66 gasoline, and 1,000 tons of water white kerosene. The other was for 7,800 tons, of which 4,900 tons was 64-66 gasoline, 1,900 tons Navy, and 1,000 tons of water white kerosene. Navy at the Gulf up an eighth cent at 9½ cents a gallon, with 60-62 endpoint 390 showing a corresponding gain to 11 cents a gallon. The market at East Coast refineries remained unchanged on both bulk and cased gasoline.

Kerosene was steady at 17.65 cents for standard white in cases and 18.90 cents a gallon for water white in cases. Bulk kerosene was quiet and unchanged.

Both paraffin wax and petrolatums were moving into export channels in larger volume during the week, and the markets strengthened. Europe was buying in a large way, and South American operators were also active. Much of the export inquiry for wax was on crude scale.

A good volume of export inquiry on cylinder oils had developed in the lub market, but export buyers were not inclined to meet refiners' price views. Reports from the field indicated that sellers' views were about a half cent a gallon higher on cylinder stocks, and this tended to slacken buyers' operations. It was reported that cylinder stocks have moved from Baltimore during recent weeks at about a cent a gallon under the New York price basis on export transactions. Export buyers were still entertaining some rather low views on red and pale oils, this being reported due to heavy offerings of these oils in the British market from other producing countries. Considerable consignment lubricating oil has reached British jobbers during the past few months from other such sources.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week Ended		
	Nov. 3	Oct. 26	Oct. 19
Gasoline	559,100	118,400	69,600
Naphtha	1,082,000	2,011,200	2,917,800
Kerosene	163,400	155,500	40,000
Fuel oil	53,600	.....	18,100
Lub. oil	1,464,000	3,169,000	986,400
Petroleum (refined)	2,993,000	2,622,200	1,031,000
	Pounds		
Petrolatum	.....	.....	68,000
Paraffin wax	1,619,900	1,678,900	3,118,100
Refined	.....	222,500	.....
Scale	350,800	410,700	275,000
Lub. grease	1,173,300	1,546,000	7,417,400

Imports

Imports of crude and refined oils at the principal United States ports for the month of October totaled 7,352,000 bbls., a daily average of 237,161 bbls., compared with 7,596,000 bbls., a daily average of 253,200 bbls. for the month of September.

Imports for the week ended November 3 totaled 1,964,000 bbls., a daily average of 280,571 bbls., compared with 1,662,000 bbls., a daily average of 237,428 bbls. for the week ended October 27.

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	75,000
Boston	71,000
New York	1,216,000
Philadelphia	336,000
Others	65,000
Total	1,763,000
Daily average	251,857
At Gulf Coast ports—	
New Orleans and Baton Rouge	201,000
Total	201,000
Daily average	28,714
At all United States ports—	
Total	1,964,000
Daily average	280,571

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the month of October totaled 1,104,000 bbls., a daily average of 35,613 bbls., compared with 2,249,000 bbls., a daily average of 74,967 bbls. for the month of September.

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended November 3 totaled 95,000 bbls., a daily average of 13,571 bbls., against 285,000 bbls., a daily average of 40,714 bbls., for the week ended October 27, 1928.

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Total	95,000
Daily average	13,571

Distribution of total California receipts is as follows:

Gasoline	95,000

Movement of California gasoline eastward has reflected the firmer market prevailing on the Pacific Coast, as well as the seasonal let-down in gasoline consumption in the East. A number of large cargoes are reported afloat for the East Coast.

Brief Items for Petroleum Refiners

MOORE TO HEAD COSDEN REFINERY OPERATIONS

George N. Moore, president of the Lakeside Petroleum Co., Chicago, has been appointed manager of the refinery division of Cosden & Co., Fort Worth, Tex. The latter company is building a 10,000-bbl. refinery at Big Spring, Howard County Texas, and when completed Mr. Moore will have general charge of operations including the sale of plant output.

Mr. Moore has been engaged in the oil business his entire life and is widely

George N. Moore

known in refining and marketing circles of the Mid-Continent and Middle West. For several years he was president of the Shaffer Oil & Refining Co. In 1922 with associates he organized the Moore Refining Co., operating a refinery at Arkansas City, Kans.

In 1921, Mr. Moore was elected president of the Western Petroleum Refiners Association. He headed the association's activities for two years. For the past three years he has been president of the Lakeside Petroleum Co., a marketing concern of Chicago. It is expected that the new Cosden refinery will be completed by March, 1929.

TEXAS OIL RATE

AUSTIN, Tex., Nov. 10.—Application of Texas railroads for authority to establish a maximum rate of 48½ cents per 100 pounds on refined petroleum oil and products in carloads from Laredo to specified stations, will be heard by the Railroad Commission at its regular term beginning December 11.

Railroads making application are the Rio Grande City Railroad, for all stations; St. Louis, Brownsville & Mexico Railway, stations south of Odem; San Benito & Rio Grande Valley Railway, all stations; Texas Mexican Railway, all stations, and Texas & New Orleans Railway, stations south of Mathis.

OTTENDORFER FORMS COMPANY

CHICAGO, Nov. 10.—Walter B. Ottendorfer has resigned from the Cities Service Co., of which he was the local manager of lubricating oil sales, to form the Midland Oil Co., of 2,209 West Harrison Street. The new organization will engage in the sale of petroleum products to the dealer trade.

INDEPENDENT OIL MEN OF AMERICA CONGRESS PROGRAM

HOTEL STEVENS, CHICAGO, NOVEMBER 18-21

SUNDAY, NOVEMBER 18

Directors' Meeting—1:30 p. m. Registration during afternoon.

MONDAY, NOVEMBER 19

Morning

Registration. Group and Committee Meetings for Compounders, Exhibitors, etc.
Exhibits open—8:30 a. m. to 1:30 p. m. (Note: The exhibitors have provided hostesses on the Exhibit Floor to assist you in finding any exhibit and for general information. "Look for the Lady Under the Red Hat.")

Afternoon

Tour of Boulevards for Ladies (cars by courtesy of Chicago Oil Men's Club).
Convention called to order at 1:30 p. m. Pres. E. H. Hilpp, presiding. (Note: Must be in room by 1:40 to receive a ticket for prize.)
President's Welcome ..... Col. E. H. Hilpp
"Our Program" ..... Jack Shlifer
Keynote Speech, "Protection, Promotion and Profit for YOU" ..... Lou Harrington
"Trade Associations and the Business Man" ..... Dr. Hugh P. Baker
(Director Trade Association Department, United States Chamber of Commerce)
"Cashing In" ..... C. Y. Hinchey, Stanley R. Niver, William H. Kane
"Direct Mail Advertising" ..... Homer Buckley
(Buckley Cement Co.)
"Why S.A.E. Viscosity Numbers" ..... E. W. Upham
(Chief Metallurgist, Chrysler Motor Corp.)
Exhibits open 4:30 p. m. to 6:30 p. m.

Evening

Theater Party for Ladies. (Courtesy Chicago Oil Men's Club.)
Stag Smoker—Registered members and guests. (Courtesy Chicago Oil Men's Club.)

TUESDAY, NOVEMBER 20

Morning

Exhibits open until 10:45 a. m.
Meeting called to order at 10:45 a. m. Prize drawing for prompt attendance. (Note: Must be in the room by 10:55 a. m. to receive ticket for prize.)
A Dramatized Version of What Membership in Independent Oil Men of America Means ..... John E. Blegen, Jay Trexler et al.
Service Station Salesmanship ..... R. L. Swats

Noon

Luncheons 12:30 p. m. for Directors Groups; State Executives Club; Compounders' Salesmen also Exhibitors.

Afternoon

Card Party and Refreshments for Ladies at Stevens Hotel.
Convention called to order 2 p. m. Prize drawing for prompt attendance. (Note: Must be in the room by 2:10 p. m. to receive ticket for prize.)
"Antiknock Fuels" ..... Dr. Gustav Egloff
Marketing Congress Conference. C. L. Maguire, Chairman; Paul Hadlick, Discussion Leader. Round Table Sessions: "Unit Control Accounting," "Gasoline Evaporation and Handling Losses," "Industrial Lubrications," "Service Station Salesmanship," "Jobbers' Open Forum," "Exhibitors' Open Forum."
Exhibits open 4:30 p. m. to 6 p. m.

Evening

Banquet and Dinner Dance—Entertainment, prizes; 6:30 p. m.
Cotillion numbers and specialties.

WEDNESDAY, NOVEMBER 21

Members Closed Session, 9:30 a. m.
Convention called to order at 10:45 a. m.
The entire morning program will be devoted to aviation, with several aviation notables participating.

Noon

Special Independent Oil Men of America, Miscellaneous Group and Private Luncheon Parties.
Exhibits open—12 p. m. to 2 p. m.

Afternoon

Convention called to order at 2 p. m. Prize drawing for prompt attendance.
"The Marketing Congress From an Exhibitors Point of View" ..... J. P. Graver
Five-Minute Speech Contest. Announcements of prize winners.

WISCONSIN CONSIDERS HIGHER GASOLINE TAX

MADISON, Wis., Nov. 10.—Efforts to increase the Wisconsin gasoline tax from the present levy of 2 cents to 4 cents a gallon are expected to reach serious proportions and probably will result in putting the proposition up to the State Legislature at the next session. It is hoped to provide some $110,000,000 over the next 10 years for construction of hard-surfaced trunk highways through the proposed increase of 100 per cent in the tax rate.

The State Highway Commission has completed a tentative draft of such a bill, and it will be presented to the county boards for action at their meetings this month. It is pointed out that the proposal really acts as a supplementary measure to the State's present highway program with but little duplication and interference.

A NEW COMPOUNDER

CHICAGO, Nov. 10.—The Ace Oil Co. has been organized in this city to do a general oil jobbing and compounding business. The office of the company is at 1,525 West Forty-third Street, which is also the address of the Safety Oil Co. The organization has been incorporated in this State by W. J. Dietrich, Stephen J. Horwath and William B. Laurich, with a capital stock of $20,000.

GUESTS IN SHREVEPORT

SHREVEPORT, La., Nov. 10.—S. P. Clark, vice president of the Crystal Oil Refining Corp. and H. A. McCarthy, general attorney, both of Philadelphia, were guests at a luncheon here given by F. W. Burford, vice president and general manager of the corporation. Approximately 200 employes of the Crystal corporation were in attendance at the luncheon.

CHANGE ROXANA NAME TO SHELL PETROLEUM CORP.

The name of the Roxana Petroleum Corp. has been changed to the Shell Petroleum Corp., according to an official announcement sent to division offices from the headquarters at St. Louis. The change in name was recently authorized by stockholders and applies to all production, refining and marketing properties operated by the Roxana corporation.

The change gives a uniformity in names covering the operations of the Royal Dutch-Shell group in the United States. The Shell Petroleum Corp., as was the Roxana Petroleum Corp., is a subsidiary of the Shell Union Oil Corp., a member of the Royal Dutch-Shell group. The Shell Co. of California, a large integrated unit on the West Coast is also a subsidiary of the Shell Union Oil Corp. All pipe line operations are now operated under the name of the Shell Pipe Line Co.

The new name of the Roxana corporation is especially important in the marketing operations of the subsidiary units. The Roxana products have been sold under the trade-mark "Shell," the same as the Shell Co. of California in the West Coast states, and the new corporation name now conforms to the trademark.

Recent developments have indicated that the Shell interests will expand their marketing in the eastern and southeastern states, with complete national distribution the ultimate goal.

LOUISIANA REFINING DEPARTMENTS MERGED

SHREVEPORT, Pa., Nov. 10.—Announcement was made at the general offices of the Louisiana Oil Refining Corp. here of the consolidation of the wholesale and retail sales departments into one division with F. E. Wilkerson, prior to the change manager of agency sales, as general sales manager. At the same time various changes in the Ohio division offices at Springfield were announced. A. I. Edsell, manager of the Ohio division, was made assistant general sales manager, and W. S. Waters, assistant manager of the Ohio division, has been moved up into Edsell's old position. K. Dyson, who has been in the sales division in both the Ohio and southern divisions, was made manager of the southern division, succeeding A. D. Oden, who resigned to join the Sinclair Oil Co. sales department at Houston. R. C. France was made assistant manager of the Ohio division with S. E. Towery. G. B. Davies, in charge of tank car sales with offices here, remains in the same capacity, with W. F. Kostelka as assistant.

FIRE AT PYSE REFINERY

Fire destroyed a portion of the research laboratory and auxiliary equipment at the Pyse, Ky., refinery of The Texas Company and took the lives of two employes, F. P. Prindle, power engineer, and Edward Tehan, chief chemist, were caught on the second floor of a three-story building in which they were carrying on experiments, the fire starting on the ground floor and completely destroying the structure. The damage is expected to approximate close to $100,000.

DISTRIBUTION IN ALBERTA

CHATHAM, Ontario, Nov. 10.—Official figures show that in northern Alberta alone 1,095 gasoline and oil pumps were passed by the Dominion weights and measures department for erection between April 1 and October 1 of the present year. In the same period 72 tank wagons have been put in operation.

Natural Gasoline Manufacture

Recommend Safety Rules in Loading Gasoline Tank Cars

The following safe practices in loading tank cars of gasoline have been recommended by the Petroleum Division of the National Safety Council:

1. Every man engaged in the operation of loading railroad tank cars must be familiar with the regulations of the Interstate Commerce Commission dealing with this subject.
2. Frequent inspection should be made of grounding, bonding of loading rack and loading rack tracks and insulation of loading rack tracks.
3. Tank cars should be spotted on the insulated part of track only. In no case should a tank car be permitted to rest partly on insulated and partly on uninsulated tracks.
4. Frequent inspections should be made of vapor proof electric lighting equipment (globes, conduit, etc.) to see that it is properly operative.
5. Employes including train crews must use approved electric flashlights or electric lanterns around loading racks. Prohibit the use of open lights.
6. Nearby flame switch lamps must not be lighted or burning during loading operations.
7. Provide signs on each loading rack track which prohibit the approach of steam locomotives closer than 65 feet from the end of the loading rack. (Exceptions to be made only by permission of the loading rack foreman.)
8. Regulation blue flag stop signs must be placed one car length or more from the end of the loading rack before loading or repairing operations are started.
9. Each crew loading or working on tank cars should lock the switch on the track leading to the loading rack with its own lock. (Exceptions made only when a derail has been provided and is locked in a like manner.
10. Coal burning locomotives working adjacent to loading operations should be equipped with screens on fire boxes and smoke stacks.
11. Locomotives should not be run over ground where cars have been filled or over sewers taking off gasoline. (Exceptions to be made only in special cases and then by permission of the loading rack foreman.)
12. When a tank car is not spotted over catch basin to sewer drain, extension drain pans should be provided or drip caught in a bucket.
13. Use standard car mover in hand spotting cars.
14. Prohibit the use of extension cords and open lights. Turn flash light on before entering tank car and turn off after coming out of tank.
15. Use only nonferrous or wooden hammers (bronze, brass, copper) around loading racks.
16. Loosen manhole cover by short vigorous pushes, not jerks, on a brass or wooden bar; face dome and make sure of footing.
17. Permit gas pressure, if present, to relieve itself through manhole cover vents before removing dome cover.

Removing Valve Caps

18. Remove bottom valve caps with a special long handled wrench provided for that purpose.
19. Report defective or leaky bottom valves to the proper authority and do not proceed with unloading until repaired.
20. Inspect interior of tank car after removing manhole cover for foreign objects, debris, etc. (Cars used for the transportation of gasoline must be clean.)
21. Avoid breaching of fumes after removal of manhole cover and during inspection and removal of objects through dome.
22. A standard make of airline mask only should be used if necessary to enter the tank to remove objects; also a life belt and a life line.
23. One man must stand by at the manhole opening to assist man within. Other help should be available to assist in case of an emergency.
24. Jumping from loading rack to tank cars or from car to car should be prohibited.
25. Rubber boots or shoes with rubber heels and soles should not be worn on account of the danger from static electric charges and the hazard of slipping.
26. Walk planks or platforms from loading rack to tank car should be frequently inspected and kept in good condition.
27. Walk planks or platforms leading from loading racks to tank cars should be securely fastened so that they cannot be displaced and cause falls of workmen. Adjustable walkways with hand rails are best.
28. Place loading spout in manhole opening, bringing end of loading line as close to bottom of tank car as possible in order to prevent excess fumes. Reduce fire and asphyxiation hazards.
29. See that the bonding line from the loading spout is in contact with the tank shell.
30. If the manhole cover chain is broken or defective put the manhole cover on loading rack platform. If it is left on tank car it may fall on some workman's head.
31. Tank cars found in bad order in any way should be reported to the repair department and not loaded until repairs have been made.
32. Avoid overfilling tank cars. Stand by to shut off loading line when load is reaching the required amount.
33. When replacing manhole cover make sure that the gasket is in serviceable condition.
34. Hook the loading spout back on the loading rack out of the way when loading has been completed.
35. Keep loading racks clear of all unnecessary tools and material.
36. Automobiles or trucks must be kept away from loading racks when cars are being loaded.
37. Dirty waste, oily rags, paper, or any refuse should be put in a covered metal container and the contents removed frequently.
38. Tools, material and debris should be kept away from tracks and pathways.
39. Clean up spills immediately. Wash with water and police area until the vapors are gone.
40. Discontinue loading operations during electrical storms and replace the manhole cover.

Sample Bottles

41. Carry sample bottles in a case and see that pieces of broken bottles do not accumulate on or under loading racks.
42. Inspect cars thoroughly for leaks before approving for shipment.
43. Take care to label the loaded car with the placard designated by the Interstate Commerce Commission.
44. After taking locks off switches or derails stay from between or under tank cars.
45. Keep away from the tank cars when the train crew is coupling them together.
46. Repair or replace leaky valves in loading lines immediately.
47. Change gasoline saturated clothing immediately. Avoid gasoline burns.
48. Permit welders and others using open fires to work in the vicinity of the

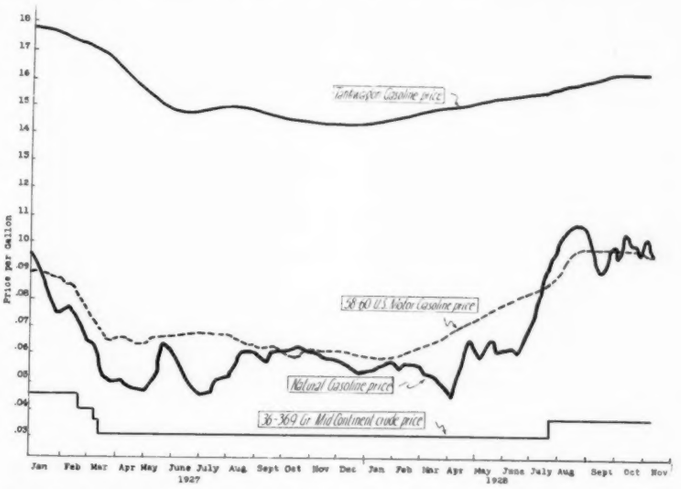
(Continued on Page 168)

NATURAL GASOLINE PRICES SEEK MORE UNIFORM BASIS

Natural gasoline prices have been hunting for a more uniform basis for more than two months, according to the accompanying graph, and the belief that natural prices will closely follow those on refinery gasoline is being borne out. At present the two are practically the same with a tendency for both to weaken slowly as the winter season is felt. This is being witnessed along with an apparent weakening in the retail gasoline market as well, but the whole price structure seems to be bolstered with the possibility of a crude advance in the near future.

Both natural gasoline manufacturers and refiners have witnessed a year of favorable operating margins, more than had been afforded during the few years past and with production being maintained at a high figure, price declines seemed imminent as soon as the lesser seasonal consumption was felt. Week

(Continued on Page 168)


Tank wagon Gasoline price
38 60 U.S. Motor Gasoline price
National Gasoline price
36-36.9 Gr Mid Continent crude price
Price per Gallon
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec Jan Feb Mar Apr May June July Aug Sept Oct Nov
1927
1928

A Practical Suggestion

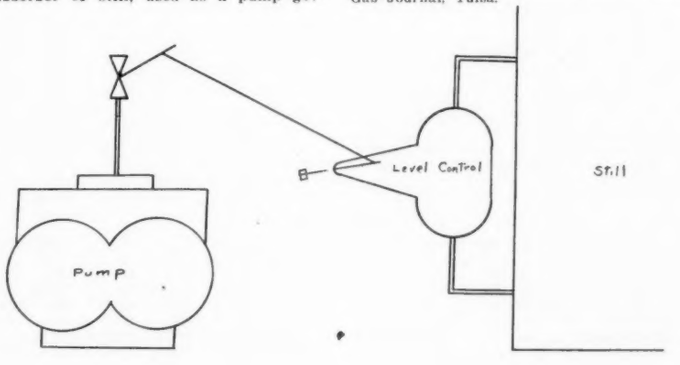
PUMP CONTROL

Oil circulation in most gasoline plants is effected by use of a centrifugal, rotary or reciprocating power pump where the prime mover is either a gas engine or electric motor. In some plants, especially those of the portable type or semipermanent one, the oil is circulated by means of the ordinary simplex or duplex steam pump using either steam or high-pressure gas.

Operation costs and extraction efficiency are often directly dependent upon the type and number of automatic devices used in running a plant. Even though practically all the operator's work is eliminated to a point that he is just a watchman, it is justified to equip plant with automatic features from the standpoint of increased efficiency.

The device described here is the use of a liquid level control on a low-pressure absorber or still, used as a pump governor or a steam pump. It is difficult to regulate a steam pump when pumping from an absorber or still unless reservoir has large capacity. Should the oil level be lowered so that balanced or butterfly valve is closed, the pump cylinder will not be filled and consequently, the motion of pump changed and sometimes it even stalls. This arrangement is applicable when pump is fairly close to liquid level control. A butterfly valve or stop cock carrying an extension is connected to the steam supply line to the pump, a small rod is attached to this valve and also to the lever of the liquid level control. It is obvious the control float will actuate valve on steam line and thereby automatically regulate the pump speed.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Nov. 13		Nov. 6		Oct. 30	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.08½	.08¾	.08¾		.08¾	.09
56-58 450 endpoint	.08½	.08¾	.08¾	.09	.08¾	.09
58-60 450 endpoint	.08¾		.08¾	.09	.08⅞	.09⅛
*58-60 437 endpoint (U. S. Motor)	.0933		.09568		.09568	
*60-62 437 endpoint	.0950		.09900		.09900	
*60-62 400 endpoint	.09½	.09¾	.10250		.10250	
*64-66 375 endpoint	.1075		.11000		.11000	
68-70 360 endpoint	.10¼	.10½	.10¼	.10½	.10¼	.10½
64-66 437 endpoint (blend)	.09¼	.09½	.09¼	.09½	.09¼	.09½
NORTH TEXAS—						
56-58 450 endpoint	.08½		.08¾		.08¾	
58-60 450 endpoint	.08½		.08¾		.08¾	
58-60 437 endpoint (U. S. Motor)	.08¾		.09	.09¼	.09	.09¼
60-62 400 endpoint	.09¼	.09½	.09¼	.09½	.09¼	.09½
64-66 390 endpoint	.09½	.09¾	.09¾		.09¾	
64-66 375 endpoint	.09⅞		.09⅞		.09⅞	
68-70 360 endpoint	.10	.10⅛	.10		.10	
64-66 437 endpoint (blend)	.09	.09¼	.09¼		.09¼	
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.09½		.09½		.09½	
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.09½		.09½		.09¼	.09½
PENNSYLVANIA—						
52-54 Naphtha	.10¼	.10½	.10¼	.10½	.10¼	.10½
54-56 Naphtha	.10½	.10¾	.10½	.10¾	.10½	.10¾
58-60 Gasoline	.11	.11⅛	.11	.11¼	.11	.11¼
60 Gasoline	.11½	.11¾	.11½	.11¾	.11¾	.12
62 Gasoline	.12½	.12¾	.12½	.12¾	.12½	.12¾
64 Gasoline	.12¾	.13	.12¾	.13	.12¾	.13
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.10	.11	.10	.11	.10	.11
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.08¾		.08¾		.08¾	.09
56-58 450 endpoint	.08¾	.09	.09		.09	
58-60 437 endpoint (U. S. Motor)	.09	.09¼	.09¼	.09½	.09¼	.09½
60-62 400 endpoint	.09½	.09¾	.09¾	.10	.09¾	.10
64-66 375 endpoint	.10¼	.10½	.10¼	.10½	.10½	.10¾
68-70 360 endpoint	.10¾	.11	.10¾		.10¾	.11
64-66 437 endpoint (blend)	.09¼	.09½	.09½		.09⅝	.09¾

NATURAL GASOLINE

	Nov. 13		Nov. 6		Oct. 30	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.09¾		.09⅝	.09¾	.10⅛	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.09¼	.09⅜	.09⅝		.10⅛	
Grade B, 76-83.9, 375 e.p., rec. 85%	.09⅛		.09½	.09⅝	.10	
Grade BB, 84-92, 375 e.p., rec. 85%	.09⅜		.09½		.10	
Grade C, 80-90, 375 e.p., rec. 78%	.09⅛		.09½		.09⅞	.10
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.09¼		.09⅝		.10	.10⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.09¼		.09⅝		.10	
Grade B, 76-83.9, 375 e.p., rec. 85%	.09	.09⅛	.09½		.10	
Grade BB, 84-92, 375 e.p., rec. 85%	.09		.09¼	.09½	.10	
Grade C, 80-90, 375 e.p., rec. 78%	.09	.09⅛	.09¼		.09¾	.10
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.09½		.09¾		.10¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.09⅜	.09½	.09⅝	.09¾	.10⅛	.10¼
Grade C, 80-92, 375 e.p., rec. 78%	.09¼		.09⅝		.10	
CALIFORNIA—						
75-78, 375-390 endpoint	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.09⅜		.09⅝	.09¾	.10	.10⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.09¼	.09⅜	.09⅝		.10	
Grade B, 76-83.9, 375 e.p., rec. 85%	.09¼		.09½		.10	
Grade BB, 84-92, 375 e.p., rec. 85%	.09¼		.09½		.10	
Grade C, 80-90, 375 e.p., rec. 78%	.09	.09⅛	.09½		.10	

BURNING OIL

	Nov. 13		Nov. 6		Oct. 30	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05¾	.06	.05¾	.06	.05⅞	.06⅛
42-44 water white Kerosene	.06	.06¼	.06	.06¼	.06⅜	.06½
NORTH LOUISIANA—						
41-43 prime white Kerosene	.06¾		.06¾		.06¾	.07
NORTH TEXAS—						
41-43 water white Kerosene	.05⅝	.05¾	.05⅝	.05¾	.05¾	
40-42 water white Kerosene	.05½		.05½		.05½	.05¾
ARKANSAS—						
41-43 water white Kerosene	.06⅛	.06¼	.06⅛	.06¼	.06¼	.06⅜
PENNSYLVANIA—						
43 Kerosene prime white	.07¼	.07⅜	.07¼	.07½	.07¼	.07½
45 Kerosene water white	.07¼	.07⅜	.07¼	.07⅜	.07¼	.07½
46 Kerosene water white	.07⅝	.07⅞	.07⅝	.07⅞	.07⅝	.07⅞
47 Kerosene water white	.08	.08¼	.08	.08¼	.08	.08¼
300 Mineral Seal	.07¼	.07½	.07¼	.07½	.07¼	.07½
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
Engine distillate, 43-44, 445 endpoint	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 42-44, 480 endpoint	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05¾	.06	.05¾	.06	.05¾	.06⅛
42-44 water white Kerosene	.06¼	.06½	.06¼	.06½	.06½	

FUEL OILS

	Nov. 13		Nov. 6		Oct. 30	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.52½	.55	.52½	.55	.52½	.55
18-22 Fuel Oil, per bbl.	.55	.60	.55	.60	.55	.60
22-26 Fuel Oil, per bbl.	.57½	.60	.57½	.60	.57½	.60
24-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
26-30 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
28-30 Fuel Oil, per bbl.	.77½	.82½	.77½	.82½	.77½	.82½
32-36 Gas Oil (dark)	.02⅜	.02½	.02⅜	.02½	.02⅜	.02½
32-36 Gas Oil (straw distillate)	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
36-38 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
38-40 Straw Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars) per bbl.	.52½	.55	.52½	.55	.52½	.55
32-36 Gas Oil (straw)	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
38-40 Straw Distillate	.02⅞	.03	.02⅞	.03	.02⅞	.03
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.70	.80	.70	.80	.70	.80
32-36 Gas Oil	.03	.03¼	.03	.03¼	.03	.03¼
ARKANSAS—						
33-36 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
32-36 Gas Oil (straw)	.03		.03		.03	
16-22 Refinery Fuel Oil, per bbl.	.75	.80	.75	.80	.70	.75
GULF COAST (South Texas)—						
Gas Oil	.04	.04½	.04	.04½	.04	.04½
Bunker C Fuel, per bbl.	.80	.90	.80	.90	.80	.90
PENNSYLVANIA—						
30-34 Fuel Oil	.04⅛	.04¼	.04⅛	.04¼	.04⅛	.04¼
36-40 Fuel Oil	.04⅝	.04¾	.04½	.04⅝	.04¼	.04½
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03	.03½	.03	.03½	.03	.03½
*15-20 Fuel Oil, Bunker (at tide water)	.85	1.00	.85	1.00	.85	1.00
15-20 Fuel Oil (cargo lots), per bbl.	.75	.85	.75	.85	.75	.85
27 plus Diesel, per bbl.	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil, Group 3, bbl.	.60	.65	.60	.65	.62½	.67½
22-26 Fuel Oil, Group 3, bbl.	.60	.65	.60	.65	.60	.65
18-22 (Group 3), per bbl.	.52½	.57½	.55	.60	.55	.60
16-20 Smackover, per bbl.	.85	.90	.85	.87½	.85	.87½
32-36 Gas Oil, zero	.02⅝	.02⅞	.02⅝	.02⅞	.02⅝	.02⅞
32-36 Gas Oil (industrial)	.02⅝	.02½	.02⅜	.02⅝	.02⅜	.02⅝
36-38 Distillate		.03¼	.03⅛	.03⅜	.03⅛	.03⅜
38-40 Straw Distillate	.03⅜	.03½	.03¼	.03½	.03¼	.03½

*Bunker.

LUBRICATING OIL AND WAX

	Nov. 13		Nov. 6		Oct. 30	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¼	.06½	.06¼	.06½	.06¼	.06½
100 vis., 3 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
150 vis., 3 color, 20-25 cold test	.08¼	.08½	.08¼	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
180 vis., 3 color, 23-28 cold test	.09⅜	.10	.09⅜	.10	.09⅜	.10
180 vis., 4 color, 23-28 cold test	.09¼	.09¾	.09¼	.09¾	.09¼	.09¾
180 vis., 5 color, 23-28 cold test	.09⅛	.09½	.09⅛	.09½	.09⅛	.09½
200 vis., 3 color, 23-28 cold test	.09½		.09½		.09½	.10¼
200 vis., 4 color, 23-28 cold test	.09⅜		.09⅜		.09⅜	.10¼
200 vis., 5 color, 23-28 cold test	.09¼		.09¼		.09¼	.10
240 vis., 3 color, 25-30 cold test	.13¾		.13¾		.13¾	.14
240 vis., 4 color, 25-30 cold test	.13¼		.13¼		.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¾		.12¾		.12¼	.12½
280 vis., 3 color, 25-30 cold test	.15½		.15½		.15½	.16
280 vis., 4 color, 25-30 cold test	.15		.15		.15	.15½
280 vis., 5 color, 25-30 cold test	.14		.14		.14	.14½
Cylinder Stocks:						
600, steam refined, light green	.08	.09	.08	.09	.08	.09
600, steam refined, dark green	.06	.06½	.06	.06½	.06	.06½
190-200 vis. @ 210 Bright Stock	.29	.30	.29	.30	.29	.30
150-160 vis. @ 210 Bright Stock	.25		.25		.25	
Waxes:						
124-126 White Crude Scale Wax	.05	.05⅛	.05	.05⅛	.05	.05⅛
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.08¼	.08½	.08¼	.08½	.08¼	.08½
36 Miners' Neutral	.07	.07½	.07	.07½	.07	.07½
150, 3 color	.20½	.21	.21	.21½	.21½	.22
180, 3 color	.24½	.25	.25	.25½	.25½	.26
200, 3 color	.27½	.28	.28	.28½	.28½	.29
220, 3 color	.31½	.32	.30½	.31	.31½	.32
600, steam refined	.14	.14½	.14	.14½	.14	.14½
635, steam refined	.15½	.16	.15½	.16	.15½	.16
650, steam refined	.17½	.18½	.17½	.18½	.17½	.18½
600, Pennsylvania flash	.21½	.22	.21½	.22	.21½	.22
*550, E filtered	.15	.15½	.15	.15½	.15	.15½
*600, E filtered			.19	.19½	.19	.19½
600, E filtered	.18	.18½	.18	.18½	.17	.17½
600, D filtered	.24½	.25	.24½	.25	.23¾	.24
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.33	.33½	.33	.33½	.33	.34
†122-124 White Crude Scale Wax	.05¼	.05⅜	.05¼	.05⅜	.05¼	.05⅜
†124-126 White Crude Scale Wax	.05⅜	.05½	.05⅜	.05½	.05⅜	.05½
GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.07¼	.07½
No. 3 color, 200 vis., pale oil	.08½	.09	.08½	.09	.08½	.09
No. 3 color, 300 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 3½ color, 500 vis., pale oil	.12½	.13	.12½	.13	.12½	.13
No. 4 color, 750 vis., pale oil	.15	.15½	.15	.15½	.15	.15½
No. 5 to 6 color, 200 vis., red oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
No. 5 to 6 color, 300 vis., red oil	.09¼	.09½	.09¼	.09½	.09¼	.09½
No. 5 to 6 color, 500 vis., red oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 5 to 6 color, 750 vis., red oil	.13¼	.14	.13¼	.14	.13¼	.14
No. 2½ color, 200 vis., pale filtered	.11¾	.12¼	.11¾	.12¼	.11¾	.12¾
No. 2½ color, 300 vis., pale filtered	.13½		.13½		.13½	
No. 2½ color, 500 vis., pale filtered	.15½	.16	.15½	.16	.15½	.16
No. 2½-3 color, 750 vis., pale filtered	.18	.20	.18	.20	.18	.20
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.11	.10¼	.11	.10¼	.11
200 vis., 2½-3 color	.11½	.12	.11½	.12	.11½	.12
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½

*At Warren, Pa. †At New York.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

350 vis., 3½-4 color	.13½	.14	.13½	.14	.13½	.14
400 vis., 3½-4 color	.15	.16	.15	.16	.15	.16
Red Neutral:						
200 vis., 4½-5 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 5-6 color	.11¾	.12½	.11¾	.12½	.11¾	.12½
400 vis., 5-6 color	.13½	.14½	.13½	.14½	.13½	.14½
500 vis., 4½-5 color	.15	.15½	.15	.15½	.15	.15½
500 vis., 5-6½ color	.15¼	.15¾	.15¼	.15¾	.15¼	.15¾
600 vis., 6½ plus color	.15½	.16	.15½	.16	.15½	.16

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Nov. 13	Nov. 6	Oct. 30
Gasoline, U. S. Motor, 58-60 437	.11	.11	.11¼
Kerosene, water white, 41-43	.09	.09	.09
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05	1.05	1.05
†Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.11¾	.11¾	.11¾
28 pale Paraffin Oil	.07½	.07½	.07
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.11	.11	.10½
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.05⅝	.05⅝	.05⅝
125-127 a.m.p., per lb.	.05⅞	.05⅞	.05⅞
130-132 a.m.p., per lb.	.06¾	.06⅝	.06⅝
133-135 a.m.p., per lb.	.07⅜	.07⅜	.07⅜
135-137 a.m.p., per lb.	.07¾	.07¾	.07¾
Petrolatum, in bbls., carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03½	.03½	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06¼	.06¼
Lily white	.07½	.07¼	.07¼
Snow white	.08½	.08¼	.08¼

*Lighterage, 5.0c a barrel extra. †Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Nov. 13	Nov. 6	Oct. 30
Gasoline, U. S. Motor, 58-60 437, in cases	.2640	.2640	.2640
Kerosene, standard white, in cases	.1765	.1765	.1765
Kerosene, water white, in cases	.1890	.1890	.1890
600, steam refined cylinder stocks, in bbls.	.21	.21	.20
635, steam refined	.22	.22	.21
650, steam refined	.24	.24	.23
600, Pennsylvania flash	.26	.26	.26
630, Pennsylvania flash	.34½	.34½	.34½
600, Warren E	.25½	.25½	.25½
600, Oil City E	.24½	.24½	.24½
Light 140-150 Bright Stocks	.40	.40	.42½
Dark 140-150 Bright Stock	.39	.39	.40½

LOS ANGELES EXPORT PRICES

	Nov. 13		Nov. 6		Oct. 30	
Kerosene, water white	.05¼	.06¼	.05¼	.06¼	.05¼	.06¼
U. S. Motor Gasoline, 53-55, 437 e.p.	.08¼	.09	.08¼	.09	.08¼	.09

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective August 15, 1928)*

Gravity—	Richfield Torrance Olinda-Brea Alamitos Hts. Signal Hill Seal Beach Huntington Beach Athens Rosecrans-Dom'guez Inglewood [1]	Whittier La Habra Coyote Hills [2]	Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge Buena Vista Hills [3]	Montebello [4]	Santa Fe Springs [5]	Coalinga [6]	Wheeler Ridge [7]	Oreutt [8]	Ventura [9]
14 to 14.9	.85	.85	.75	.85	....	.75	.75	.85	.85
15 to 15.9	.85	.85	.75	.85	....	.75	.76	.85	.85
16 to 16.9	.85	.85	.75	.85	....	.75	.75	.85	.85
17 to 17.9	.85	.85	.75	.85	....	.75	.75	.85	.85
18 to 18.9	.85	.85	.75	.85	....	.75	.75	.85	.85
19 to 19.9	.85	.85	.75	.85	....	.75	.75	.85	.85
20 to 20.9	.85	.85	.77	.86	....	.77	.77	.85	.85
21 to 21.9	.89	.88	.79	.89	.89	.79	.79	.86	.86
22 to 22.9	.93	.91	.82	.92	.92	.82	.82	.87	.87
23 to 23.9	.97	.94	.86	.95	.95	.85	.85	.90	.90
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.93	.94
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.95	.98
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	.97	1.02
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.23
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	....
38 to 38.9	1.71	....	....	....	1.60	....	....	....	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	....
40 to 40.9	1.83	....	....	....	....	....	....	....	....
41 to 41.9	1.89	....	....	....	....	....	....	....	....
42 to 42.9	1.95	....	....	....	....	....	....	....	....

*Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity. Dominguez and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 14 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 14 to 33.9 gravity; Lost Hills, 14 to 34.9 gravity.

Columns 8 and 9 posted by Union Oil Co. only.

†On October 2 Standard Oil Co. of California discontinued contracting for purchase of Kern River crude and on October 20 established following prices on grades below 14 gravity—11 to 11.9 degrees at 45 cents, 12 to 19 degrees at 50 cents.

CRUDE OIL GRAVITY TABLE

Gravity—	[1] Okla., Kans., N. C. Tex.	[2] No. La. and Arkansas	[3] Smackover, Ark.	[4] Stephens, Ark.	[5] Gray County (Texas Panhandle)	[6] Salt Creek, Wyo.	[7] Grade B & Light Crude (G. Coast)	[8] Somerset (South Central Texas)
24 and above	....	....	.90	....	....	....	....	....
Below 24	....	....	.75	....	....	....	....	....
Below 25	.60	....	....	....	....	....	1.15	....
25 to 25.9	.67	....	....	....	....	....	....	....
Below 26	....	....	....	....	....	....	....	....
26 to 26.9	.74	....	....	....	....	....	1.19	....
27 to 27.9	.81	....	....	....	....	....	1.21	....
Below 28	....	.81	....	.75	.68	....	....	....
28 to 28.9	.88	.88	....	.77	.68	....	1.23	....
29 to 29.9	.95	.95	....	.79	.75	.95	1.25	....
30 to 30.9	1.02	1.02	....	.81	.82	1.02	1.27	....
31 to 31.9	1.09	1.09	....	.83	.89	1.09	1.29	....
32 to 32.9	1.16	1.16	....	.85	.96	1.16	1.31	1.05
33 to 33.9	1.21	1.21	....	....	1.01	1.21	1.33	1.07
34 to 34.9	1.26	1.26	....	....	1.06	1.26	1.35	1.09
35 to 35.9	1.31	1.31	....	....	1.11	1.31	1.37	1.11
36 to 36.9	1.36	1.36	....	....	1.16	1.36	....	1.13
37 to 37.9	1.41	1.41	....	....	1.21	1.41	....	1.15
38 to 38.9	1.46	1.46	....	....	1.26	....	....	1.17
39 to 39.9	1.51	1.51	....	....	1.31	....	....	....
40 to 40.9	1.56	1.56	....	....	1.36	....	....	....
41 to 41.9	1.61	1.61	....	....	1.41	....	....	....
42 to 42.9	1.66	1.66	....	....	1.46	....	....	....
43 to 43.9	1.71	1.71	....	....	1.51	....	....	....
44 and above	1.76	1.76	....	....	1.56	....	....	....

Column 1—Magnolia Petroleum Co. posted schedule August 2, 1928, making price below 25 gravity 60 cents per barrel, 25-25.9 gravity 67 cents, 26-26.9 gravity 74 cents, and 27-27.9 gravity 75 cents, 30-30.9, 90 cents, and 31-31.9, $1.05, with balance of the price schedule as shown.

Oklahoma—Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., Carter Oil Co., The Texas Company, July 26.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola (Iatan posted at flat price of 93 cents by Magnolia on January 14, 1928).] Currie, Nocona and Moran. Prairie, Sinclair and Gulf; The Texas Company, Humble Oil & Refining Co., July 26.

Kansas—Prairie, Sinclair; Carter, The Texas Company, July 26.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., and Gulf Refining Co., August 2. Magnolia Petroleum Co. schedule effective August 7 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and El Dorado, Ark., light crude. The Texas Company August 8 posted prices below 28 gravity at 7 cents differential per degree with minimum of 60 cents for all below 25 gravity.

Column 3—February 6, Louisiana Oil Refining Co. February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co. February 8, and on February 10, Atlantic Production Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., August 3.

Column 5—Humble Oil & Refining Co., July 26.

Column 6—Midwest Refining Co., July 26. All crude over 37 gravity, $1.41 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends 35 and above), March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (March 14, 1927)*....$1.00
Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE
Carson and Hutchinson

Below 32 gravity	$ .69
32-32.9	.76
33-33.9	.81
34-34.9	.86
35-35.9	.91
36-36.9	.96
37-37.9	1.01
38-38.9	1.06
39-39.9	1.11
40-40.9	1.16
41-41.9	1.21
42-42.9	1.26
43-43.9	1.31
44 and above	1.36

Wheeler County

Below 30 gravity	$ .65
30-30.9	.72
31-31.9	.79
32-32.9	.86
33-33.9	.91
34-34.9	.96
35-35.9	1.01
36-36.9	1.06
37-37.9	1.11
38-38.9	1.16
39-39.9	1.21
40-40.9	1.26
41-41.9	1.31
42-42.9	1.36
43-43.9	1.41
44 and above	1.46

Gray County.....See gravity table

Humble Oil & Refining Co. and Magnolia Petroleum Co., July 26.

Iatan*.....Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)‡.....$ .65
Chalk†.....80

*Includes Howard County and Westbrook Fields. Marland Refining Co. pays $1.05 for Howard Ccunty crude, effective May 21.

†Magnolia Petroleum Co., January 14, 1928.

‡Posted by Humble Oil & Refining Co., Magnolia Petroleum Co. and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11).....$ .75
Bellevue (Feb. 27, 1927).....1.35
Urania (Oct. 16, 1928).....90
East El Dorado (March 16, 1927).....1.00
Other fields.....See gravity table

*Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co. and Magnolia Petroleum Co.; (Magnolia Petroleum Co. posted Cotton Valley February 8); Urania, Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, Sugarland, Raccoon Bend, High Island, Pierce Junction and Spindletop.)

Grade A (March 14)*.....$1.20
Grade B.....See gravity table
Jennings, La. (March 14)†.....$1.05
Saratoga, Batson, Daytona (March 14, 1927)‡.....1.20
Markham (March 14)‡.....1.00

*Humble Oil & Refining Co. and other major buyers. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company.

SOUTH CENTRAL AND SOUTH-WESTERN TEXAS

Luling (May 5)*.....$1.00
Mirando (March 14)†.....1.00
Rockdale-Minerva (April 15):
Below 38 gravity.....1.25
38-38.9 gravity.....1.27
39-39.9 gravity.....1.29
40 and above.....1.31
Thrall‡.....
Callihan (May 15).....1.75
Lytton Springs (Lockhart).See gravity table
Somerset.....See gravity table

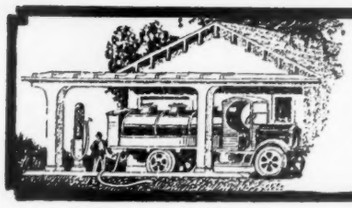
*Posted by Magnolia Petroleum. Thrall prices same as North Central Texas less 19½ cents per cwt. freight.

†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective July 27, 1928)

Rock Creek, Wyo.....$1.33
Salt Creek.....See gravity table

(Continued on Page 158)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Nov. 13.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago dist.	15.6	17.0	...	12.0
Decatur, Ill.	15.2	15.0	...	12.1
East St. Louis	14.4	16.4	.	11.2
Joliet	15.4	17.4	...	12.3
Peoria	15.2	15.6	...	12.1
Quincy	15.2	17.2	...	11.9
Davenport, Ia.	18.5	20.5	3.0	12.3
Des Moines	18.5	20.5	3.0	12.3
Keokuk	18.5	20.5	3.0	12.3
Sioux City	18.1	20.1	3.0	11.9
Duluth, Minn.	18.5	20.5	2.0	12.9
Mankato	18.1	20.1	2.0	12.7
Minneapolis	18.2	20.2	2.0	12.9
La Crosse, Wis.	18.2	20.2	2.0	13.0
Milwaukee	17.1	19.1	2.0	11.9
Madison	17.3	17.3	2.0	12.1
Detroit, Mich.	18.8	20.8	3.0	13.7
Grand Rapids	18.7	20.7	3.0	13.6
Saginaw	18.9	20.9	3.0	13.8
Evansville, Ind.	18.0	20.0	3.0	13.0
Fort Wayne	18 4	18.4	3 0	13.4
Indianapolis	18.2	20.2	3.0	13.2
South Bend	18.4	20.4	3.0	13.4
Fargo, N. D.	19.9	21.9	2.0	14.9
Huron, S. D.	20.3	22.3	4.0	13.7
Sioux Falls	19.1	21.1	4.0	13.4
K. C., Mo.*	17.9	19.9	3.0	10.6
Springfield*	17.8	19.8	3.0	11.5
St. Louis*	16.9	18.9	2.5	11.3
St. Joseph*	17.5	19.5	3.0	11.2
Wichita, Kans.	15.8	17.8	2.0	10.8
Bartlesville, Ok.	16.5	18.5	3.0	10.5

*State tax 2 cents; remainder city tax.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	12.9
V. M. & P. naphtha	16.2	13.9
Cleaner's naphtha	18.0	14.9
Stanisol	19.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	16.0	20.0	2.0	12.0
Fort Worth	16.0	19.0	2.0	12.0
Houston	16.0	20.0	2.0	15.0
San Antonio	14.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.5	20.5	2.0	13.0
Muskogee, Ok.	18.0	20.0	3.0	12.0
Okla. City	18.0	20.0	3.0	12.0
Tulsa	17.0	19.0	3.0	10.0
Ft. Smith, Ark.	18.0	20.0	3.0	14.0
Little Rock	21.0	23.0	5.0	14.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	17.25	19.25	2.0	12.25
McCook	18.75	20.75	2.0	13.75
Norfolk	17.75	19.75	2.0	12.75
N. Platte	18.75	20.50	2.0	13.50
Scotsbluff	18.75	20.75	2.0	13.25

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	19.0	22.0	3.0	14.5
Pueblo	19.0	22.0	3.0	14.5
Grand Junction	22.5	25.5	3.0	18.0
Casper, Wyo.	19.0	22.0	3.0	13.0
Cheyenne	20.0	23.0	3.0	14.5
Butte, Mont.	23.5	26.5	3.0	19.0
Helena	23.5	26.5	3.0	19.0
Salt Lake, Utah	22.0	25.0	3.5	17.0
Albu'que, N. M.	22.0	25.0	5.0	17.0
Boise, Idaho	24.5	27.5	4.0	19.0
Twin Falls	24.5	27.5	4.0	19.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	22.0	24.0	4.0	16.5
Augusta	22.0	24.0	4.0	15.5
Macon	22.0	24.0	4.0	16.5
Savannah	21.0	21.0	4.0	14.5
Birm'ham, Ala.	22.0	24.0	4.0	14.0
Mobile	22.0	24.0	4.0	15.0
Montgomery	21.0	22.0	4.0	16.5
Clarks'le, Miss.	21.0	23.0	4.0	13.0
Jackson	19.0	21.0	4.0	14.5
Natchez	20.5	22.5	4.0	14.0
Gulfport	22.5	24.5	4.0	14.0
Vicksburg	20.5	22.5	4.0	14.0
Jack'ville, Fla.*	22.0	24.0	5.0	13.5
Miami*	23.0	25.0	5.0	15.5
Pensacola*	24.0	26.0	5.0	13.5
Tampa*	22.0	24.0	5.0	13.5
Lexington, Ky.	21.0	23.0	5.0	15.5
Covington	22.0	22.0	5.0	15.5
Louisville	21.0	23.0	5.0	15.0

*Note—Florida station prices have been 2 cents above tank wagon prices in respective points since July 30 as shown above.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene only. Pensacola tax includes 1-cent city levy. Gulf port tax includes privilege tax of 2 cents in addition to state tax.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	18.0	20.0	2.0	14.0
Newark, N. J.	18.0	20.0	2.0	14.0
Annapolis, Md.	21.0	23.0	4.0	14.0
Baltimore	21.0	23.0	4.0	11.0
Cumberland	21.0	23.0	4.0	14.0
Washington	19.0	21.0	2.0	14.0
Danville, Va.	22.0	....	5.0	14.0
Norfolk	19.0	20.0	5.0	14.0
Petersburg	22.0	24.0	5.0	14.0
Roanoke	22.0	24.0	5.0	14.0
Richmond	22.0	24.0	5.0	14.0
Ch'rlot'n, W. V.	22.0	23.0	4.0	14.0
Keyser	21.0	23.0	4.0	14.0
Parkersburg	21.0	23.0	4.0	14.0
Wheeling	21.0	23.0	4.0	14.0
Charlotte, N. C.	21.0	23.0	4.0	14.0
Hickory	21.0	23.0	4.0	14.0
Mt. Airy	21.0	23.0	4.0	14.0
Salisbury	21.0	23.0	4.0	14.0
Charleston, S. C.	22.0	24.0	5.0	14.0
Columbia	22.0	24.0	5.0	14.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	18.0	20.0	...	15.0
New York*	18.0	20.0	...	15.0
Buffalo	18.0	20.0	...	14.0
Rochester	18.0	20.0	...	14.0
Syracuse	18.0	20.0	...	15.0
Boston, Mass	18.0	20.0	...	15.0
Augusta, Me.	22.0	24.0	4.0	15.0
Manch't'r, N. H.	22.0	24.0	4.0	15.0
Burlington, Vt.	21.0	23.0	3.0	15.0

*Prices in steel barrels.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	15.5	17.5	3.0	16.0
Baton Rouge	16.0	18.0	3.0	14.5
Alexandria	17.0	19.0	3.0	16.0
LaFayette	17.0	19.0	3.0	15.5
Lake Charles	17.5	19.5	3.0	16.0
Shreveport	17.5	19.5	3.0	15.0
Knoxv'le, Tenn.	21.0	21.0	3.0	16.0
Memphis	19.0	21.0	3.0	15.0
Chattanooga	20.5	22.5	3.0	16.0
Nashville	20.0	22.0	3.0	16.0
Bristol	21.0	23.0	3.0	15.0
Lit. Rock, Ark.	21.0	23.0	5.0	14.0

*Tax of 3 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	17.0	21.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	2.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	2.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	16.0	*21.0	...	15.0
Philadelphia	16.0	*21.0	...	15.0
Scranton	16.0	*21.0	...	15.0
Allentown	16.0	*21.0	...	15.0
Altoona	16.0	*21.0	...	15.0
Erie	16.0	*21.0	...	15.0
Philadelphia	16.0	*21.0	...	15.0
Dover, Del.	19.0	21.0	3.0	15.0
Wilmington	19.0	21.0	3.0	15.0
Springf'd, Mass.	18.0	20.0	...	15.0
Worcester	18.0	20.0	...	15.0
Boston	18.0	20.0	...	15.0
Providence, R. I.	20.0	22.0	2.0	15.0
Hartford, Conn.	20.0	22.0	2.0	14.0
New Haven	20.0	22.0	2.0	15.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
All Ohio points.	19.0	20.0	3.0	14.5

TANK WAGON CHANGES

November 3.—Standard Oil Co. of Kentucky advanced the gasoline tank wagon and station prices 2 cents in Birmingham, Ala., to 22.0 and 24.0 cents.

November 5—Standard Oil Co. of Kentucky advanced the gasoline station price 2 cents in Pensacola, Fla., to 26 cents.

November 8—Standard Oil Co. reduced the gasoline station price 2 cents in Fort Wayne, Ind., to 18.4 cents, the same as the tank wagon price.

November 9—Standard Oil Co. of Indiana reduced the gasoline station price 2 cents in Peoria, Ill., to 15 cents.

November 10—Standard Oil Co. of Indiana reduced the gasoline station price 2 cents in Decatur, Ill., to 15 cents.

November 10—Atlantic Refining Co. reduced the gasoline tank wagon and station price 1 cent in Pennsylvania and Delaware.

MAY USE GAS OIL RATIO AS BASIS OF PRODUCTION

A plan now under consideration by the owners of oil and gas leases in Township 8-5, Oklahoma, where several wells are producing from the Misener sand and the Hunton lime, contemplates the use of a gas-oil ratio to govern the output of the region.

There have been several wells in this vicinity flowed against a back pressure, and the experiments thus far have indicated that the use of a gas-oil ratio and the maintenance of back pressure on Misener and Hunton wells will have beneficial effects.

It is evident that the Misener and the Hunton both have a high gas pressure in this region, and it is the desire of the Seminole advisory committee and Umpire Ray M. Collins to have the oil from these two horizons produced with a minimum of gas, thereby securing a much greater ultimate recovery from the wells, and also prolonging the natural flowing life of the wells.

In the opinion of the umpire and the Seminole committee, the maintenance of a back pressure on these wells will retard the encroachment of edge water, and the coning of bottom water; it being assumed that both types of water are present.

In addition to the above results, it is believed that the holding of a back pressure on the oil and gas separators will provide fuel for drilling wells and other lease operations without the trouble and expense of recompressing the gas.

The recommendations of a body of engineers called into consultation regarding this matter provide that each operator shall hold that back pressure on each well which gives the lowest possible gas-oil ratio without reducing its production over 20 per cent; that in no case shall an operator produce any oil with a gas-oil ratio over 5,000 cubic feet per barrel, regardless of the loss in production which this proviso may require; that meters shall be placed on each well and an inspector working under Mr. Collins' supervision shall check the daily meter charts and oil gauges to make certain that proper gas-oil ratios are being secured; and that a committee of engineers shall be appointed to serve as advisor to Mr. Collins and the proration committee. This committee will collect necessary data and recommend changes in operating conditions on various wells and on the pool as a whole as the changing situation in the pool makes such changes advisable.

A.I.M.E. NOMINATIONS

The nominating committee of the American Institute of Mining and Metallurgical Engineers has made the following nominations: Frederick W. Bradley, president; Edgar Rickard, vice president and director; Henry A. Buehler, vice president and director; Francis W. Paine, Harvey S. Mudd, Eugene McAuliffe, Erle V. Daveler and William R. Wright, directors.

CRUDE OIL PRICES

(Continued from Page 157)

Big Muddy	1.33
Grass Creek, heavy	.90
Grass Creek, light	1.48
Mule Creek (May 1)	1.10
Elk Basin	1.48
Lance Creek	1.48
Poison Spider (March 14, 1927)	1.00
Notches (March 14, 1927)	.65
Rex Lake (February 22)	1.10
Osage	1.48
Lost Soldier (contract)	.95
Hamilton Dome (March 14, 1927)	.85
Greybull-Torchlight	1.48
Cat Creek (Montana)	1.48
Sunburst (Montana) (May 18, 1928)	1.65
Artesia	1.08
Hogback (New Mexico)	1.48

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agent
(Effective November 9, 1928)

Penna Grade Oil in New York Transit Lines (New York)	$3.60
Bradford District Oil in National Transit Lines (Pennsylvania)	3.60
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.50
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	3.50
Penna Grade Oil in Eureka Pipe Line Lines (Pensylvania)	3.40
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.25
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (July 13)	1.45
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (August 8)	1.70
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines (August 8)	1.80
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Sept. 14, 1928)	1.75
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (August 1)	.93

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective July 27, 1928)

Lima	$1.60
Wooster (October 17)	1.77
Illinois	1.55
Indiana	1.37
Princeton	1.55
Plymouth	1.23
Waterloo (November 17, 1926)	1.35
Western Kentucky* (Sept. 17, 1928)	1.69
Saginaw, Mich., Saginaw Sand (February 10)†	1.80
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (Oct. 1, 1928)§	1.75
Oil Springs (Canada)¶	2.07
Petrolia (Canada)¶	2.00

*Posted by Ohio Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports)	$1.15

Note—Due to the fact that the exportation of Tuxpam light crude has become a negligible factor, prices will no longer be published.

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Oil Securities Reach New High Marks

Slight Reaction on Monday Was to Be Expected After Rapid Advances. Buying Rallies Send Many Issues Consistently Upward

By Special Correspondent

For the third successive week the oil group presented a strong picture with buying rallies which consistently carried many issues into new high ground for the year. The first slump in the oils came on Monday of this week when the market softened slightly. Considering the advances which have been made within the three-week period, the reaction of the oils might have been expected.

Barnsdall Oil was again prominent, touching a new high of 53. This issue has doubled in price in a very limited time. Standard of New Jersey was also strong, while the curb Prairie Pipe Line made sharp advances which sent it to 236.

Standard of California

The directors of the Standard Oil Co. of California have declared regular dividend No. 11 of 62½ cents a share, and an extra dividend of 50 cents a share, both payable on December 15, 1928.

Anglo-Persian

Anglo-Persian Oil Co., Ltd., for year ended March 31, 1928, reports net profit of £1,859,262 after depreciation, interest, reserves, etc., equivalent after dividend requirements on first and second preferred stocks, to 7.33 per cent on £13,425,000 common stock. This compares with £2,844,555, or 14.67 per cent in previous year.

Income account for the year ended March 31, 1928, compares as follows:

	1928	1927
Net profit after depr., interest and reserve	£3,112,529	£4,635,443
Expense bonus	.....	40,595
Extra depreciation	453,267	450,293
Reserves	800,000	1,300,000
Net profit	£1,859,262	£2,844,555
1st & 2d pfd. divs.	875,000	875,000
Interim 5% com. divs.	.....	671,250
Balance	£984,262	£1,298,305
Common dividends*	†1,006,875	1,006,875
Deficit	£22,612	*£291,430
Brought forward	2,246,879	1,955,449
Carried forward	£2,224,266	£2,246,879

*Profit. †Payable November 30, 1928.

Shell Union

Stockholders of the Shell Union Oil Corp. of record December 5, have been offered right to subscribe for new common at $10 a share in ratio of three-tenths of a share for each share now held. Subscription privilege expires January 10. A special meeting of stockholders will be held November 21 to vote on increasing authorized stock to 20,000,000 shares from 10,000,000 shares. Subscription rights will call for issuance of 3,000,000 shares of stock.

The regular quarterly dividend of 35 cents on common was declared, payable December 31 to stock of record December 5.

Proceeds from the sale of additional stock will be used for the purpose of increasing the producing, transporting, refining and distributing facilities of subsidiaries, to complete the purchase of an interest in the Flintkote Corp. and for general corporate purposes. Chief capital expenditures are the construction of a refinery at Houston and the building of a 10-inch trunk pipe line from West Texas to Houston.

There is no present plan for the issue of the 7,000,000 remaining common shares. Lee, Higginson & Co. and associates and De Bataafsche Petroleum Maatschappy, The Hague, Holland, have underwritten the present offer.

Shell Union Oil Corp. and subsidiaries report for quarter ended September 30, 1928, profit of $9,390,116 after depreciation, depletion, etc., but before federal taxes, comparing with $4,492,069 in preceding quarter and $3,814,274 in third quarter of 1927.

Profit for nine months ended September 30, 1928, totaled $15,433,352 before federal taxes, against $11,403,691 in first nine months of previous year. Stock outstanding amounts to 10,000,000 shares of no-par stock.

Shell Pipe Line Corp., controlled by Shell Union Oil, reports profit of $3,336,287 after interest, depreciation, etc., but before federal taxes, for quarter ended September 30, 1928. Profit for first nine months of 1928 total $5,194,858 before federal taxes.

Consolidated income account for quarter ended September 30, 1928, compares as follows:

	1928	1927
Total inc.	$21,325,107	$12,472,083
Depr., depl., etc.	11,934,991	8,657,809
Profit*	$9,390,116	$3,814,274
Pfd. divs.	.....	.....
Com. divs.	3,500,000	3,500,000
Surplus	$5,890,116	$314,274
P. & L. Surp.	35,561,711	35,806,829

*Before federal taxes.

Nine months ended September 30:

	1928	1927
Tot. inc.	$48,992,391	$35,941,570
Depr., depl., etc.	33,559,039	24,537,879
Profit	$15,433,352	$11,403,691
Pfd. divs.	.....	.....
Com. divs.	10,500,000	10,500,000
Surplus	$4,933,352	$518,257

*Before federal taxes.

Swiss Oil Corp.

Pres. Thomas A. Combs of the Swiss Oil Corp., Inc., Lexington, Ky., reports to the stockholders "payment of our final obligation, in the principal sum of $200,000, to the former owners of the Union properties. This highly favorable showing has been made possible largely, almost wholly, because of income derived from operation of the Union properties. Since such acquisition, there have been paid from revenues derived from the operation of said properties, obligations aggregating the principal sum of approximately $4,800,000."

Shaffer Oil & Refining

Shaffer Oil & Refining Co. reports for 12 months ended August 31, 1928, gross revenue of $17,287,064; comparing with $17,616,500 in preceding 12 months, and profit of $3,740,471 after charges but before depreciation and depletion, against $3,036,115.

Vacuum Oil

Vacuum Oil Co. declared a special year-end dividend of $1 and regular quarterly dividend of 75 cents, both payable December 20 to stock of record November 30.

OIL BONDS ON THE NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange
Kennedy Bldg., Tulsa, Okla.

Amount outstanding	Company—	Date	Pct.	Int.	For week ended Nov. 9 — Sales	High	Low	Close
.....	Atlantic Refining Co.	July 1937	5	J&J	2,000	101½	101⅜	101½
18,864,500	Barnsdall Oil with war.	Dec. 1940	6	J&D	774,000	153	137	153
6,000,000	Barnsdall Oil without war.	Dec. 1940	6	J&D	59,500	97⅜	97	97⅜
11,400,000	California Pet. conv. deb.	Nov. 1938	5½	M&N	37,000	104⅜	103⅛	104¼
7,400,000	California Pet. conv. deb.	Feb. 1939	5	F&A	14,000	102½	101	102
.....	General Petroleum	Aug. 1940	5	F&A	63,000	102½	101¼	102¼
25,000,000	Humble O. & R. deb.	July 1932	5½	J&J	29,000	102¼	101⅝	101⅞
24,239,000	Humble O. & R. deb.	Apr. 1937	5	A&O	34,000	100⅛	100	100¼
10,103,000	Mid-Cont. Pet. Corp.	Mar. 1940	6½	M&S	5,000	105¼	105	105
3,745,000	Pan-American Pet. & T.	Aug. 1930	7	F&A	10,000	104½	104⅛	104½
10,161,900	Pan-American Pet. & T.	Nov. 1934	6	M&N	70,000	107⅜	105	107⅜
40,000,000	Phillips Pet.	June 1939	5¼	J&D	No sales.			
.....	Pierce Oil deb.	June 1931	8	J&D	No sales.			
.....	P. & R. Corp.	Dec. 1931	8	J&D	No sales.			
.....	P. & R. Corp. without war.	June 1931	8	J&D	5,000	111	111	111
20,000,000	Pure Oil	Aug. 1937	5½	F&A	39,000	100⅜	99⅝	100⅛
30,000,000	Shell Pipe Line Co.	Nov. 1952	5	M&N	82,000	97½	96¾	97⅛
50,000,000	Shell Union Oil Co.	May 1947	5	M&N	280,000	99¼	98½	98¾
3,431,500	Simms Pet. Co.	Nov. 1929	6	M&N	290,000	104⅝	99⅜	102½
44,816,500	Sinclair Co. Oil Co. A	Mar. 1937	7	M&S	108,000	103½	102⅜	103⅛
23,086,500	Sinclair Co. Oil Co. B	Mar. 1938	6½	J&D	106,000	101⅜	101⅛	101½
20,000,000	Sinclair Co. Oil Co. D	Sept. 1930	6	M&S	60,000	99½	99⅛	99⅜
.....	Sinclair Cr. Oil Pur. Co. A	Jan. 1938	5½	J&J	38,000	98⅜	97⅛	97⅜
.....	Sinclair Pipe Line Co.	Oct. 1942	5	A&O	34,000	95½	95	95⅛
15,000,000	Skelly Oil Co.	Mar. 1939	5½	M&S	25,000	95⅜	94⅝	94⅝
.....	Standard Oil of N. J.	Dec. 1946	5	F&A	106,000	103	102⅜	102⅝
.....	Standard Oil of N. Y.	Dec. 1951	4½	J&D	297,000	97⅜	96⅝	97⅛
.....	Union Oil of Calif.	Jan. 1931	5	J&J	No sales.			
8,934,500	Union Oil of Cal. 20 yr. A	May 1942	6	F&A	1,000	101⅝	101⅝	101⅝
9,419,000	Union Oil of Cal. series C	Feb. 1935	5	A&O	6,000	110	110	110
4,870,000	White Eagle Oil & Ref.	Mar. 1937	5½	M&S	118,000	103½	99⅞	103

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla.
Members New York Curb Market

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par value	Stocks	For Week ended November 9 — Sales	Open	High	Low	Last	Change
$6 75	.45	2⅞	.55	1½	.66	$5	Amer. Con. Oilfields	5,900	80	81	75	77	—1
..	..	7½	2¾	6⅝	3⅛	N.P.	Amer. Maracaibo	193,600	5	8⅞	5	8⅝	+3⅜
..	..	2¾	1	4½	2¼	$10	Argo Oil	No sales.					
85¼	60	40	20½	50	32¾	N.P.	British American	500	50	55	50	53½	+3½
28⅜	9¼	28¼	15½	23⅞	12½	25c	Carib. Syndicate (new)	17,000	18	20	18	19¾	+2⅛
..	..	58¾	40¼	72⅛	54	$20	Cities Service	74,800	71⅜	73⅞	71¼	73⅞	+2⅜
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	1,800	99⅝	99¾	99½	99¾	.....
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	400	9¼	9¼	9¼	9¼	.....
3½	1¾	3⅞	1⅛	2¼	1 1/16	1	Colombia Syndicate	8,200	1⅛	1¼	1	1¼	+⅛
..	..	9¾	6⅜	8⅛	6½	10	Consolidated Royal	No sales.					
16	10	14⅞	9½	17½	10	N.P.	Creole Syndicate	43,800	12¼	12⅞	12⅛	12¾	+⅝
..	..	3	.50	2¾	.76	N.P.	Crown Central	1,000	1½	1¾	1⅜	1¾	+⅛
7⅞	6¾	12	4	31	8⅛	N.P.	Darby Petroleum	3,000	28½	30	28½	29⅛	+⅜
..	..	2½	.74	2⅛	1	N.P.	Derby Oil & Refining	500	2	2	2	2	—½
..	..	16¾	4	21	7½	N.P.	Derby Oil & Refining, pfd.	No sales.					
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales—20@50.					
98	92	118	86¼	148½	101⅛	$25	Gulf Oil Corp.	29,100	136	144¾	136	139¾	+3¾
$3 00	.83	2½	.80	2¾	1	10	Intercontinental Pet.	33,800	1¾	1⅞	1½	1¾	—⅛
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	400	2	2⅜	2	2⅜	—⅛
12¼	5¾	10⅞	5⅛	9⅜	5⅛	N.P.	Leonard Oil & Dev.	4,400	5¼	5½	5⅛	5⅜	—¼
27	20	27½	20	40⅛	20	N.P.	Lion Oil & Refining	10,400	38⅞	39¾	37	38	+⅝
46	30	59⅜	37	59⅞	49	$25	Lone Star Gas	8,500	58¼	65	57¾	65	+8
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	5,800	74	74	67	70	+4
34	12½	52	12	45	34½	N.P.	Margay Oil	200	36¼	36¼	36¼	36¼	+¼
8	5½	12⅛	5	8	4¼	N.P.	Mexico-Ohio Oil	No sales.					
1¾	1⅛	1½	1	1½	81	$1	Mountain & Gulf	11,900	1¼	1¼	1⅛	1¼	+⅛
26	23	29¼	22¾	28⅝	21½	10	Mountain Producers	6,400	21⅞	22¼	21⅝	22	+⅛
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	900	4½	4⅞	4⅝	4¾	+¼
..	..	16	9¼	11⅜	7½	1	New Mex. & Ariz.	1,800	8	8¼	7⅝	7¾	...
..	..	12¾	9½	13¼	10¾	N.P.	North Central Texas	900	10⅞	10⅞	10¼	10⅜	—⅜
10¼	5¾	9⅜	3¼	6	2¼	N.P.	Pandem	2,000	2½	2⅞	2½	2⅞	+½
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	21,000	11¾	12¾	12	12⅜	+⅜
22¾	12	13½	5⅛	7¾	5⅛	$10	Pennok Oil	1,700	5	5½	5	5½	+¼
17	8½	24⅜	7	14½	9	25	Red Bank Oil	700	9¼	9¼	9	9	—⅛
30¼	12	15½	3½	12⅞	4½	N.P.	Reiter-Foster	12,200	8¾	9	8⅛	8¾	+⅛
7	4½	7	4½	9⅞	4⅝	N.P.	Ryan Consolidated	16,400	6¾	10½	6¾	10½	+3¾
10	7⅛	8	5¼	7¾	5¾	$10	Salt Creek Cons.	200	5¾	5⅞	5¾	5⅞	.....
35	24⅛	35½	27¼	35	23¼	10	Salt Creek Prod.	16,400	24⅛	27	24	26¾	+2½
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	100	1½	1½	1½	1½	—¼
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	600	16⅞	16⅞	16	16¾	+⅝
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	800	15¾	15⅛	15⅛	15⅛	—¾
92	63½	92	63½	87	75	100	Transcontinental, pfd.	1,400	85	88	82	88	+3
8	4½	7⅝	4¼	8⅛	4⅞	5	Venezuelan Petrol	28,500	7¾	8¼	7⅝	7⅝	—⅛
8⅛	5½	8	4¾	8¼	4⅞	$1	Woodley Petroleum	No sales.					
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	17,400	5	7¼	5	6⅞	+2½

*Ex-dividend.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	Transactions week ended November 9 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	38	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	138,900	35¼	40¾	34¾	38½	+ 3⅝
74	39⅞	82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	3,800	72⅜	72⅜	69	69	— 1
60	44¾	50¼	35	53⅜	37½	$56,000,000	$25	Associated Oil	50cQ	Sept. 29, 28	60	47	48½	47	47	.....
128⅜	97	131⅜	104	239⅝	95¾	50,000,000	25	Atlantic Refining	$1Q	Sept. 15, 28	167,000	..	60	55⅝	57¼	+ 2
33½	23½	35½	20¾	47⅛	20	28,725,675	25	Barnsdall Corp. A	50cQ	Oct. 31, 28	389,600	43⅞	51⅞	45¾	51⅝	+ 7⅝
94¼	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	12,600	72¼	75⅞	72	73⅝	+ 1⅛
72	50¼	175¾	60⅛	167	119	25,000,000	100	Houston Oil	.....	.....	3,300	135½	137⅜	131	131	— 6½
54	19⅝	32¾	17⅝	34¼	21¾	(sh) 500,000	N.P.	Independent Oil & Gas	37½cQ	Oct. 31, 28	38,900	33¼	34⅜	32¾	33⅝	+ 1
12¾	7½	12⅛	7⅝	39⅝	9	$3,280,340	$10	Indian Refining	.....	May 31, 24	65,900	31½	36	31	36	+ 3¾
25⅞	16½	37¾	20½	39⅛	27⅜	(sh) 3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	9,900	34	35⅞	33½	35⅜	+ 1⅝
19⅞	12	18⅛	10	19¾	9⅜	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	173,900	17⅜	19⅛	17	18⅜	+ 1⅛
28	16½	22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	4.000	20⅛	20	18¾	18¾	— ½
63⅜	49¼	58½	31	46⅝	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	112,600	46¼	47⅜	44½	45	— ½
13¾	6	9¼	3	41½	4⅝	(sh) 945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	206,300	38¼	42¼	38	42	+ 4
37	20½	39⅜	25½	38⅜	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	.....	Aug. 1, 27	70,300	37¾	39⅞	37½	38⅜	+ 1⅛
104¼	90	105	97	115⅛	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28						
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	16,600	6	6	5½	5¾	.....
76½	56⅛	65⅞	40¼	53¾	38¼	$48,807,400	$50	Pan American P. & T.	.....	Oct. 20, 27	18,500	51	55	51¾	53¼	+ 2
78⅜	56⅞	66⅜	40¼	54⅝	37¾	121,097,900	50	Pan American P. & T. B	.....	Nov. 15, 24	212,100	53	58⅞	53	55	+ 1½
46	30	37⅞	16¾	28⅜	15½	(sh) 400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	3,900	17½	18½	17½	17½	.....
32	4½	18⅞	8	21¾	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	10,700	16	17	14⅝	17	+ 1
99¾	51	83	54	106¼	70	$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	100	87	86½	86½	86½	— ½
57⅜	40	60¼	36¼	46⅜	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Oct. 1, 28	83,200	46¼	47⅞	46¼	47¼	+ 1
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	9,100	3¼	3⅜	3	3¼	+ ¼
7	2¼	5½	2½	6⅝	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	18,600	5½	6	5½	5⅜	+ ¼
20¾	11	33⅞	16¾	28⅝	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	4,100	25	25½	24⅛	24⅛	.....
41¾	30¾	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	40	43½	43¾	43½	43¾	— 1¼
31	25¼	33½	25	28½	19	75,959,350	25	Pure Oil Co.	37½cQ	Dec. 1, 28	56,500	27⅛	28⅜	26¾	27⅜	+ ⅝
27½	22	28⅝	25⅝	53	23½	$29,224,894	$25	Richfield Oil	.....	Oct. 20, 27	138,900	48⅝	52¾	48⅝	50¾	+ 1¼
57⅜	47⅜	54½	44¼	63⅜	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	$1.879	Aug. 3, 28	5,700	62	62	60⅝	60¾	— ⅞
48⅝	40½	47⅞	41⅜	57½	40⅝	(sh) 77,590	£2	Shell Transport & T.	$1.455	July 23, 28						
31	24	31¾	24⅝	32½	23¼	(sh) 10,000,000	N.P.	Shell Union Oil	35cQ	Sept. 30, 28	222,100	32½	35½	32¼	34⅝	+ 2⅜
28⅝	15⅛	26⅜	14¼	25½	18⅛	$7,208,080	$10	Simms Petroleum	.....	Apr. 1, 27	61,100	24	26¼	24	25¾	+ 1¾
24⅞	16¾	22⅜	15	44⅛	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	.....	597,100	42½	44⅜	40⅛	42	— ¼
99½	90	104½	97	110	102½	$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Aug. 15, 28	600	108	109	108	109	+ 1½
37¼	26⅝	37⅜	24⅛	39	25	27,396,590	25	Skelly Oil Co.	50cQ	Sept. 15, 28	40,300	38	39	37⅝	38¾	+ 1¼
63⅝	51½	60¾	50⅜	63⅞	53	(sh) 13,016,434	N.P.	Standard Oil of California	65½cQ	Sept. 15, 28	116,600	63	66	63⅛	65¾	+ 2¾
46⅜	37½	41⅜	35⅛	49	37¾	$607,910,525	$25	Standard Oil of New Jersey	‡25cQ	Sept. 15, 28	352,400	47⅞	52⅞	48	51¾	+ 3¾
47¼	30⅜	34⅛	29¾	41½	28¾	427,973,275	25	Standard Oil of New York	40cQ	Sept. 15, 28	178,500	36⅛	38¾	36	37⅝	+ 1⅝
41⅝	30⅛	34⅞	30	65⅛	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	Sept. 15, 28	5,000	62½	64	61½	61½	— 1
5¾	1	6½	3⅛	11⅞	2½	(sh) 1,121,368	N.P.	Superior Oil Corp.	.....	Dec. 20, 20	230,600	10⅝	12⅜	10½	11⅞	+ 1¼
58	48	58	45	73½	50	$180,480,550	$25	The Texas Corporation	75cQ	Oct. 1, 28	121,500	68½	70¼	68½	70	+ 1½
19½	12	18⅞	12	19¼	12½	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	318,700	19⅝	26⅝	19	24½	+ 5⅜
39¼	27	29⅛	19	36	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Sept. 29, 28	5,900	34	35	34	34¾	+ ¾
103	87¼	90⅛	85	95¼	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1.25Q	Nov. 15, 28	1,800	95½	96	95½	96	+ 1
27	20⅞	19⅛	15¾	25	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	101,400	22½	23⅞	22⅛	22⅝	+ ⅝
5½	3	10⅜	3¾	10⅛	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	323,000	8⅝	12	8⅝	12	+ 3⅛
58¾	37¼	56½	39⅝	57	42¾	$40,791,225	$25	Union Oil of California	50cQ	Nov. 10, 28	1,300	52½	54⅛	52½	53¼	+ ¾
120⅜	84¼	127½	94	128⅛	116¾	30,844,000	100	Union Tank Car Co.	$1.25Q	Sept. 1, 28	200	..	115½	115	115½	— ½
30⅛	23½	34½	24½	44⅞	26	(sh) 310,956	N.P.	Warner Quinlan	50cQ	Oct. 1, 28	25,600	42½	42⅞	41⅞	42¼	+ ¼
29¾	25⅛	27½	20	30¼	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Oct. 20, 28	28,400	29	32	29	31⅜	+ 2⅜

*Odd lots. ‡Also extras.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22¾	16¾	£4,126,460	£1	Anglo-American Oil	24.4c	June 6, 28	3,400	18⅝	18⅞	18½	18⅞	+¼
..	..	3¾	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	200	2⅞	3⅛	2⅞	3	+⅛
76	65	69	50	56	45½	1,000,000	25	Borne Scrymser	$18.A.	Oct. 15, 28	No sales.					
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Sept. 15, 28	1,100	67½	67⅝	66	66	—¼
82½	65	126	76½	161	117¼	3,000,000	25	Chesebrough Mfg.	$1Q	Sept. 29, 28	100	145¼	145¼	145¼	145¼	—¾
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	48,800	18⅛	19⅜	18⅛	19	+⅝
137	102	137	89	114	88	3,000,000	100	Cumberland Pipe Line	$2Q	Sept. 15, 28	50	82	82	82	82	.....
63¾	43	68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	250	66	66	66	66	.....
32½	9⅞	13½	3½	12	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	200	8¾	8¾	8¾	8¾	+1
68⅛	52	68½	54	88½	60	73,117,577	25	Humble Oil & Refining	30cQ	Oct. 1, 28	68,800	88	99	91⅜	96¼	+6⅛
144½	125½	182	123¾	264	176½	20,000,000	100	Illinois Pipe Line	$6S.A.	June 15, 28	2,350	260	262	241	260	.....
..	..	64¾	37¾	93	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	25cQ	Sept. 1, 28	49,800	93⅛	104	93	94½	—½
72½	58	94½	61	91⅞	74⅞	$5,000,000	$50	Indiana Pipe Line	$1Q	Nov. 15, 28	500	83	83⅛	83	83¼	+⅛
35½	28¾	39	28¼	45¼	35	(sh) 17,123,444	N.P.	International Petroleum	25c	June 30, 28	105,500	49½	55	49½	50⅜	+⅝
20¾	12½	24	13½	32⅜	20⅛	$6,363,350	12.50	National Transit Co.	25cQ	Sept. 15, 28	2,700	23¼	24¾	23⅛	24¾	+1¾
51½	27¼	44½	31¼	75	37½	5,000,000	100	New York Transit	.....	July 15, 26	50	74¼	74¼	74¼	74¼	+¼
80½	64	100	70	125	62	4,000,000	100	Northern Pipe Line	$38.A.	July 1, 28	150	62	62	61¾	61¾	.....
67¾	55¾	67⅞	52	68¼	58	60,000,000	25	Ohio Oil Co.	50cQ	Sept. 15, 28	38,100	64⅜	69⅞	64¼	69	+4½
24¾	15	39	12	44	29	10,000,000	25	Penn Mex. Fuel	$1.25	May 31, 28	600	40	41	38½	38½	.....
137½	122½	190	132	236	172	81,000,000	100	Prairie Pipe Line	$3.50	Oct. 31, 28	11,400	219	225	215	220	+2
60¼	48	55½	45⅝	56	46	60,000,000	25	Prairie Oil & Gas	.....	Aug. 31, 27	27,800	54	56¾	54	55⅜	+1¼
220	84½	201½	175½	205	167	4,000,000	100	Solar Refining	$5S.A.	June 20, 28	250	212	212	205	212	+7
74½	61½	27¼	15½	35⅞	12	5,000,000	50	Southern Pipe Line	$2	Dec. 1, 27	2,400	15⅞	16	15½	15¼	—¾
50	34½	41½	35	68	36¾	2,000,000	25	South Penn Oil	50cQ	Sept. 29, 28	21,200	65¼	68⅞	65½	67⅜	—1⅜
56	47½	83	55½	100	70	3,500,000	100	Southwest Pa. Pine Lines	$1Q	July 2, 28	100	81	85	83	85	+3½
70½	60½	81½	64⅝	83⅝	70⅞	228,415,463	25	Standard Oil of Indiana	62½Q	Sept. 15, 28	59,600	80⅞	85¾	81	83⅝	+3
36½	16½	20⅞	14⅝	27¾	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	9,700	22⅛	24¼	22½	23¼	+1
134⅜	108	130	111½	157⅝	122¼	17,012,559	25	Standard Oil of Kentucky	$1Q	Sept. 29, 28	15,400	155	161⅜	155½	159¼	+2⅞
51⅛	42	49½	40	49⅞	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Sept. 20, 28	7,400	46⅞	51⅞	46⅞	50	+3⅛
372	288	87½	72	95	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Sept. 1, 28	900	93	98¼	93	97¾	+3¼
21	15	21	14½	26	16	30,734,000	25	Swan Finch Co.	.....	Nov. 1, 19	100	22½	22½	22½	22½	—½
109⅜	90¼	..	..	87⅛	72¼	124,941,600	25	Vacuum Oil	75cQ	Sept. 20, 28	31,700	84⅝	93½	85	90	+5

Standard Oil of Nebraska

Standard Oil Co. of Nebraska declared an extra dividend of 50 cents and regular quarterly dividend of 62 cents, both payable December 20 to stock of record November 26. In preceding quarter an extra dividend of 25 cents was declared.

Rio Grande Oil

At directors' meeting of Rio Grande Oil Co. within the next two weeks, special stockholders' meeting will be called to act on proposal to split up stock on five to one basis, new stock probably to be no par. It is expected all details will be concluded in time to make distribution by Christmas. Application will be made to list stock on New York Stock Exchange.

Mexican Seaboard

Report of Mexican Seaboard Oil Co. and International Petroleum Co. and domestic subsidiaries for quarter ended September 30, 1928, shows combined loss of $159,226 after interest, drilling expenses, etc., but before depletion. This compares with net loss of $100,123 in preceding quarter and net loss of $243,298 in third quarter of 1927. Combined net loss for nine months ended September 30, 1928, totaled $686,603 before depletion, against net loss of $1,521,233 in first nine months of previous year.

Cia Internacional de Petroleo y Oleoductos, South American pipe line subsidiary of Mexican Seaboard, reports for

(Continued on Page 168)

TWENTY REPRESENTATIVE STOCKS

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb was as follows:

Nov. 12	78.27	Sept. 22	67.12	Aug. 6	66.16
Nov. 5	75.99	Sept. 15	67.06	July 30	64.68
Oct. 29	75.02	Sept. 8	66.76	July 23	64.18
Oct. 20	70.05	Sept. 1	65.96	July 16	64.51
Oct. 12	68.03	Aug. 27	65.79	July 9	65.38
Oct. 6	67.55	Aug. 20	65.42	July 2	64.17
Sept. 29	67.93	Aug. 13	65.16	June 25	62.88

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

SULPHUR DIOXIDE FOR REMOVING HYDROGEN SULPHIDE

I want to locate the description of a process for removing hydrogen sulphide from oil by treating with sulphur dioxide and will appreciate any information you can give me about this or if you will tell me where I can get the description?—L. L. A.

The following publications of the United States Bureau of Mines, obtainable through the Superintendent of Documents, Washington, D. C., give information about hydrogen sulphide:

Bulletin 231. Investigations of Toxic Gases From Mexican and Other High-Sulphur Petroleums and Products, by Sayers and others, 1925.

Reports of Investigations, No. 2,776. Hydrogen Sulphide Poisoning in the Texas Panhandle, Big Lake, Tex., and McCamey, Tex., Oil Fields, by Yant and Fowler, 1926.

No. 2,847. Prevention of Hydrogen Sulphide Poisoning in Handling and Refining High-Sulphur Petroleums, by H. C. Fowler, 1927.

The following is from the last mentioned:

In regard to the hydrogen sulphide in crude oil trouble, it seems rather surprising that no use appears to be made of the long known and very simple reaction for recovering elementary sulphur from hydrogen sulphide by its interaction with sulphur dioxide as expressed in the following equation:

$$2H_2S + SO_2 = 3S + 2H_2O.$$

Sulphur dioxide in liquid form is already a refining agent in the oil industry, as exemplified in the Edeleanu process of refining petroleum distillates, and hence there can be no strong objection to its use. But in the reaction referred to above, while it can be carried out quite well with liquid sulphur dioxide, it can be perhaps more conveniently carried out with gaseous sulphur dioxide, the form in which it exists at ordinary temperature and pressure.

If crude oil containing hydrogen sulphide were treated with this gas, as it comes from the well, it would seem, theoretically, that the above reaction must take place, converting the two sulphur compounds into elementary sulphur in solid form and water. Theoretically, also, the oil after this treatment would be perfectly innocuous without any smell due to sulphuretted hydrogen, and be also noncorrosive.

Moreover, the treatment of large quantities of oil in this way would yield a sulphur product of market value which possibly would more than pay for the simple treatment. The term "theoretical" is used in the above expressions because the writer has had no opportunity of testing the method on an oil highly charged with hydrogen sulphide.

The same reaction should be effective in freeing hydrocarbon gases of hydrogen sulphide. It seems to be merely a matter of mixing sulphur dioxide in practically equivalent quantity to bring about the reaction and thus to easily purify the gas, at the same time winning the sulphur as a by-product.

GAS OIL CHANGED TO GAS

If a gallon of 36-38 gravity gas oil was completely vaporized, how many cubic feet of gas would it contain or give off?—G. D. H.

Gas oil is not a pure chemical substance but a mixture of many hydrocarbons; so we shall have to assume that an oil with a gravity of 36 A.P.I. may be represented by some formula. The general properties of gas oils suggest that a hydrocarbon having a molecular weight of 282 may have about the same characteristics. The compound of this molecular weight in the paraffin hydrocarbons is eiconsane with the formula $C_{20}H_{42}$. While it is a solid, its boiling point approaches that of gas oil. Gas oil usually contains some wax and other substances which are solids when separated and purified. The lighter oils, being present in the greater proportion, serve to reduce the weight to that represented by the formula.

According to the established facts about the composition and volume of gases, it appears that the molecular weight of a gas in pounds will produce a volume equivalent to 359 cubic feet. This is known as the pound mol, and is called the molal volume. Then if this theoretical gas oil has a molecular weight of 282 and it is assumed that it will be entirely converted to a gas, there will be 359 cubic feet produced from each 282 pounds. The gas oil of 36 gravity will weigh 7.034 pounds to the gallon. Then

$$\text{one gallon} \frac{359}{282} \times 7.034 = 8.95 \text{ cubic feet.}$$

It should be clear that a calculation of this kind can have no direct application to what happens when a gas oil is cracked in a pressure still. Under various conditions and with many kinds of oil, the volume of gas obtained when cracking may range from 50 to 350 cubic feet per barrel of oil charged.

HYDROGEN SULPHIDE REMOVAL FROM GAS

Will you please send me copies of articles which you have published on the hydrogen sulphide removal process? I am especially interested in its application to the removal of hydrogen sulphide from natural gas.—C. E. R.

See answer to L. L. A. in this issue. The editions of The Oil and Gas Journal are exhausted soon after publication so we cannot supply copies of back numbers.

You will find some helpful suggestions in the article, Meeting Sulphur Oil and Gas Problems in The Oil and Gas Journal November 10, 1927, page 29. Additional information on this subject has been given on this page in the issues of July 15, 1926; September 9, 1926; May 19, 1927; June 2, 1927.

GASOLINE SUBSTITUTES

Can you give me any information about the use of alcohol and any other materials that are used in place of gasoline for motor fuels?—S. W. N.

The various processes which are now used for manufacturing different substances which are used to some extent as motor fuel were outlined in an article by Col. G. A. Burrell in The Oil and Gas Journal, October 18, 1928, page 56. This article contained a description of the several gasoline substitutes and the information below is from this source:

At the present time alcohol, benzol, and to a slight extent producer gas are substitutes for gasoline. Alcohol is possibly the only fuel which could be turned out in immense quantities, but it suffers from high production costs. Only when gasoline sells for 35-40 cents a gallon will it appear as a serious contender. Even then it is highly doubtful if alcohol in the tremendous quantity desired ever could be manufactured. Too much of the world's food acreage would have to be turned over to its production, and even were this possible it would be years before the machinery of its production and distribution could be provided. However, as a by-product from established fermentation industries some alcohol can be obtained at a price to compete with gasoline. These are the molasses, sugar refining, garbage, paper and other industries.

Most of the alcohol made at the present time comes from molasses. But all the available alcohol from this source would only amount to 2 per cent of the gasoline requirements of the country. Alcohol can also be made by the reduction of acetaldehyde formed by the catalytic combination of acetylene and water. But calcium carbide is too costly at the present time to make the process commercial.

Alcohol suffers from the disadvantage that on a volume basis it is equivalent to only three-fourths its volume of gasoline. Its vapor pressure is relatively low so that motor starting is difficult, and to obtain the maximum efficiency out of the fuel, compression ratios have to be increased. However, these are only incidental objections. Motor car manufacturers would make short work of them if alcohol had to be used as a motor fuel.

The foregoing discussion has reference only to ethyl alcohol. Methyl alcohol is now made relatively cheaply on a large scale from coal gas by the reaction between carbon monoxide or carbon dioxide and hydrogen in the presence of a catalyst. This alcohol has never received much consideration as a motor fuel. It suffers from some of the objections possessed by ethyl alcohol, such as high cost compared to gasoline, much lower fuel value per gallon, and difficulty of making it in tremendous quantities. Further it is poisonous and has a tendency to preignite, which can, however, be eliminated by adding to it a small amount of water. This acts as an antiknock compound. Even so, there can be obtained only about one-half as much mileage per gallon as in the case of gasoline.

Gasoline is, of course, the world-wide motor fuel. No other product can take its place at the moment, nor is there serious likelihood of its being displaced for many years to come. However, other motor fuels are used to a limited extent in this and other countries.

These include the so-called "Carburant National" motor fuel of France, which is a mixture of 50 per cent of gasoline and 50 per cent of alcohol. The French government decreed in October, 1926, that such a mixture must be employed, although at the moment not enough alcohol is available to mix with all the gasoline used. The French government did this to make its country less dependent upon foreign supplies of motor fuel, to stimulate the use of a home product, and to derive a revenue from one of its own products.

In England equal parts of alcohol and benzol are used to some extent and in the United States mixtures of benzol and gasoline. Germany uses considerable alcohol and benzol, sometimes adding naphthalene or tetraline. A fuel called Motaline, a mixture containing the antiknock substance, iron carbonyl, and manufactured by the I. G. Farbenindustrie Co., is also employed. Other European nations also use mixtures of benzol and alcohol.

Natalite, a fuel containing 54 per cent of alcohol, 45 per cent of ether and 1 per cent of trimethylamine is used in South Africa. The ether gives the fuel the necessary motor starting properties, and the trimethylamine avoids the damage resulting from the formation of acetic acid.

Motor fuel used in Hawaii contains 75.2 per cent of ethyl alcohol (made from molasses), 22.6 per cent of ethyl ether and 1.5 per cent of kerosene. The cost of making it is 10-11 cents a gallon.

Producer gas made from charcoal or wood, and generated on the truck, is used to a considerable extent in France for propelling trucks. Enough fuel can be carried to run a truck from 50 to 100 miles.

BLENDING OILS FOR DESIRED SPECIFICATIONS

Can you advise useful method to determine specifications obtained after blending fuel and gas oils, also lubricating oils, having a different gravity, flash, fire, viscosity and endpoint?—A. H.

The blending of oils for some desired property or a number of different properties is largely a matter of experience. However, the gravities and viscosities may be predetermined by calculation and by the use of suitable charts. The gravity is frequently calculated by means of the barrel formula. The quantities and gravities are set down according to the following:

$$\text{Gravity of Mix} = \frac{(\text{Bbls.} \times \text{Gravity}) + (\text{Bbls.} \times \text{Gravity})}{\text{Total barrels}}$$

Example—What will be the gravity of a mix consisting of 200 bls. of 28 gravity oil and 150 bbls. of 24 gravity oil?

$$\frac{(200 \times 28) + (150 \times 24)}{350}$$

The gravity of the mix will be 26+.

Other methods for determining blends according to gravity were discussed on this page through several issues beginning June 10, 1926.

A chart for calculating viscosities was published as an insert in The Oil and Gas Journal of February 9, 1928.

The other properties you mention cannot be predetermined with accuracy in a blend. Usually the low flash and low fire points will persist and this is also true of endpoint.

BOOK ON PETROLEUM CHEMISTRY

Please send me the name and address of a good book on the chemistry of petroleum.—S. L. B.

A list of books treating with the chemistry of petroleum and other subjects related to the petroleum industry was printed in The Oil and Gas Journal, page 164, April 21, 1927.

The recent book by W. A. Gruse, Petroleum and Its Products, contains much about the chemistry of petroleum, especially as applied to the industry in the United States. This book is published by the McGraw-Hill Book Co., 370 Seventh Avenue, New York City.

FURNACE OILS ACTIVE IN CHICAGO MARKET

(Continued from Page 150)

close to these prices. The same oil with a fairly low sulphur content would have sold in some instances as high as 57½ cents possibly 60 cents and if desirable in every way including odor, pour test, viscosity and color it might have found critical buyers who would have paid as high as 65 cents, in fact sales were made but the demand was much less for these oils than for the more common products and the supply likewise is limited. The same is true right through the scale of gravities. Varied uses of the same gravity of oil have caused careful buyers to be more critical and the result is a division of nearly every gravity of oil used for fuel into three grades. Fuel oils are being freely used today that a few years ago would have been considered useless by the average consumer. On the other hand varied uses such as the domestic oil burner have caused a demand for selected fuels. The demand is here and to stay and refiners can increase the stability of their fuel oil by refining to specifications rather than simply producing a residual oil whatever it might be.

Service Station Reductions

Service station prices have been reduced at several points in the territory, the most important point being Fort Wayne, Ind., where the service station price was reduced to 18.4 on November 8. At least four oil companies have been cutting prices there and each accuses the other of being the cause of the trouble. One of the local oil companies there has taken over practically all of the large commercial accounts and the other dealers are at loss to understand what advantage is being offered to secure this business if not some form of price concession. Some of the Chicago bootleggers are using the most primitive methods to cut prices. One station was reported as selling at 15 cents, the regular tank wagon price. One of the major companies sent a salesman to this station to buy a fill of gasoline. He bought five gallons paid 75 cents and was given a receipted ticket and also a card in the dealer's customers club. That dealer was promptly told by his source of supply to put his price back to 17 cents, the normal station price or his contract would be cancelled. The only peculiar thing is that he expressed surprise that his refiner knew that he was cutting prices. The major and most of the smaller companies are doing all they can to hold the local market at normal prices yet there is still some price cutting. The strange thing is how the cut-price dealer can expect to make a profit on the present range of prices. One of the leading local distributors stated last week it was his opinion there was as much sub-rosa price cutting as ever and when asked why this was the case under the new conditions he said that since the margin had been cut, the only thing some of these dealers believed it possible for them to do was to try and secure more gallonage and they believed there would actually be less competition for them as many who formerly sold at reduced prices had advanced their price to the normal figure.

After all, this kind of reasoning is not so very different from that of the refiners who in previous years seemed to believe that the more gasoline they ran, and shipped the more money there was in the business without regard to the price at which the gasoline was sold. The industry is beginning to give more attention to the distributing costs and some rather drastic steps may be taken next season or perhaps sooner to correct conditions. An economist who has specialized on the distributing end of the industry stated recently that in this department of the industry a waste of at least $150,000,000 a year could be shown on facts already known to investigators.

Lubs Move Freely

Lubricating oils are still moving quite freely according to some of the refiners who state that their October business in high grade motor oils was very good, some say as good as during August. A possible explanation is that during August the dealers were selling from earlier deliveries and during October they were ordering winter oils. At any rate as the colder weather comes there is a larger demand for the better oils. Bright stocks are firm. There is a good export demand for a blended motor oil which needs a considerable quantity of bright stocks which has reduced the supply and is almost certain to continue to keep stocks in good shape. There is nothing cheering as regards neutrals according to one leading refiner. Generally there is a very keen competition between the refining districts for the business in this territory with the near by refiners having the advantage.

WEST TEXAS FIELDS

(Continued from Page 48)

Reagan	224	17,346
Runnells	3	370
Scurry	5	31
Upton	293	13,932
Winkler	421	144,392
Total this week		330,247
Total last week		330,788
Difference		541

WEST TEXAS COMPLETIONS
Week ended November 10

Brewster County

Reece & White's No. 1 Kimball, located 1,320 feet from S and E of Section 204, Block 9, G.H.&S.A.R.R. Survey, was dry and abandoned at 2,265 feet.

Crane County

J. K. Hughes' No. 1 State Bank, located 990 feet from NE and 2,310 feet from NW of Section 23, Block 4, H.&T.C. Survey, topped the salt at 525 feet, topped the lime at 2,480 feet, had sulphur water at 2,940 feet and was dry and abandoned at 3,651 feet.

Crockett County

Fuhrman Petroleum Co.'s No. 1 Padgett, located 330 feet from NE and 2,336 feet from SE Section 17, S. C. White Survey, topped the salt at 659 feet, topped the lime at 1,740 feet, had an oil show at 1,770 feet, was drilled to a total depth of 1,897 feet, shot with 260 quarts at 1,770-1,835 feet and was dry and abandoned.

Glasscock County

World Oil Co.'s No. 2 McDowell, located 330 feet from S and 1,650 feet from W of Section 32, Block 34, Township 2s, T.&P. Survey, topped the lime at 2,440 feet, had sulphur water at 2,575 feet and was dry and abandoned at 3,210 feet.

Howard County

Cosden & Co.'s No. 4-A Roberts, located 330 feet from S and E of Section 129, Block 29, W.&N.W. Survey, topped the pay at 3,060 feet, was drilled to a total depth of 3,073 feet, had an initial production of 1,040 bbls., S per cent water. F. H. E. Oil Co.'s No. 5-E Roberts, located 330 feet from N and 2,310 feet from E of Section 136, Block 29, topped the pay at 2,999 feet, was drilled to a total depth of 3,031 feet and had an initial production of 300 bbls. Merrick & Bristow's No. 3 D. Roberts, located 330 feet from S and 1,650 feet from W of Section 137, Block 29, topped the lime at 2,140 feet, topped the pay at 2,949 feet, was drilled to a total depth of 3,001 feet and had an initial production of 70 bbls. per hour. Schermerhorn Oil Co.'s No. 3 Dora Roberts, located in Section 157, Block 29, topped the lime at 2,115 feet, topped the pay at 2,977 feet, drilled to a total depth of 2,999 feet and had an initial production of 200 bbls. per hour.

Kent County

Phillips Petroleum Co.'s No. 1 M. S. Sandell, located in Section 429, Block D, H.&T.C.R.R. Survey, was dry and abandoned at 4,194 feet.

Jones County

Mook-Texas Co.'s No. 1 Creight, located 330 feet south and east of NW cor. of east 100 acres, Scatlorn Survey A-301, was dry and abandoned at 2,570 feet. Phillips Petroleum Corp.'s No. 4 J. C. Mason, located 993 feet north and 330 feet east of SW cor. W half NE cor. Section 18, Block 19, was dry and abandoned at 3,034 feet. Phillips Petroleum Corp.'s No. 6 J. R. Walling, located 1,635 feet east and 330 feet south of NW cor. S half Section 19, Block 19, T.&P. Survey, swabbed 176 bbls. at 2,499-2,507 feet. Roberts Oil Co.'s No. 2 A. T. Smith, located 33 feet north and west of SE cor. Section 51, Block 18, T.&P. Survey, swabbed 640 bbls. first 24 hours and 875 feet second 24 hours at 2,491-99 feet.

Menard County

Sabiens & Bevens' No. 1 Davis, located C of NW of SW of Section 79, Jacob Brecher Survey, was dry and abandoned at 1,004 feet.

Pecos County

California Co.'s No. 3 Smith, lease No. 1, located 2,334 feet from S and 1,045 feet from W of Section 23, Block 194, G.C.&S.F. Survey, topped the lime at 1,329 feet, topped the pay at 1,536 feet. was drilled to a total depth of 1,754 feet and had an initial production of 106 bbls. per hour. California Co.'s No. 1 Tippett, lease No. 1, located 869 feet from S and 1,040 feet from E Section 2, D. F. Robertson, topped the lime at 1,280 feet, topped the pay at 1,363 feet, was drilled to a total depth of 1,385 feet and had an initial production of 32 bbls. hourly. Mid-Kansas Oil & Gas Co.'s No. 6-D Yates, located 821 feet from S and 8,253 feet from W of Section 61, Block 1, I.&G.N. R.R. Survey, topped the pay at 1,035 feet, was drilled to a total depth of 1,130 feet, plugged back to 1,114 feet and had an initial production of 240 bbls. Zoch's No. 1 Tippett, located C of Section 35, Block 12, H.&G.N. Survey, topped the salt at 540 feet, topped the lime at 1,255 feet, encountered sulphur water at 1,340 feet, and was dry and abandoned at 1,368 feet.

Runnells County

Gibson & Johnson's No. 1 Rainwater, located 660 feet north and east of most southerly SW cor. of J. H. San Miguel Survey, was dry and abandoned at 3,000 feet.

Winkler County

Eastland Oil Co.'s No. 2 Hendricks, located 1,980 feet north and 1,650 feet west of Section 35, Block B-5, Public School Land, topped the lime at 2,275 feet, and had an initial production of 600 bbls. daily at 2,864-3,090 feet. Republic Production Co.'s No. 5-C Hendricks, located 990 feet north and east of Section 42, Block B-5, topped the lime at 2,683 feet, and had an initial production of 120 bbls. daily at 2,815-95 feet. Southern Crude Oil Producing Co.'s No. 2 T-88-S Hendricks, located 1,320 feet north and 330 feet west of Section 34, Block 26, topped the lime at 2,451 feet and had an initial production of 155 bbls. hourly. Southern Crude Oil Producing Co.'s No. 3 Hutchings T-90, located 2,200 feet south and 330 feet east of Section 47, Block 26, Public School Lands, topped the lime at 2,329 feet, topped the pay at 2,898 feet, was drilled to a total depth of 3,060 feet and had an initial production of 250 bbls. daily. Texon Oil & Land Co.'s No. 3-A Hendricks, located 2,310 feet south and east of Section 41, Block B-5, was drilled to a total depth of 3,102 feet and had an initial production of 165 bbls. daily, 80 per cent water.

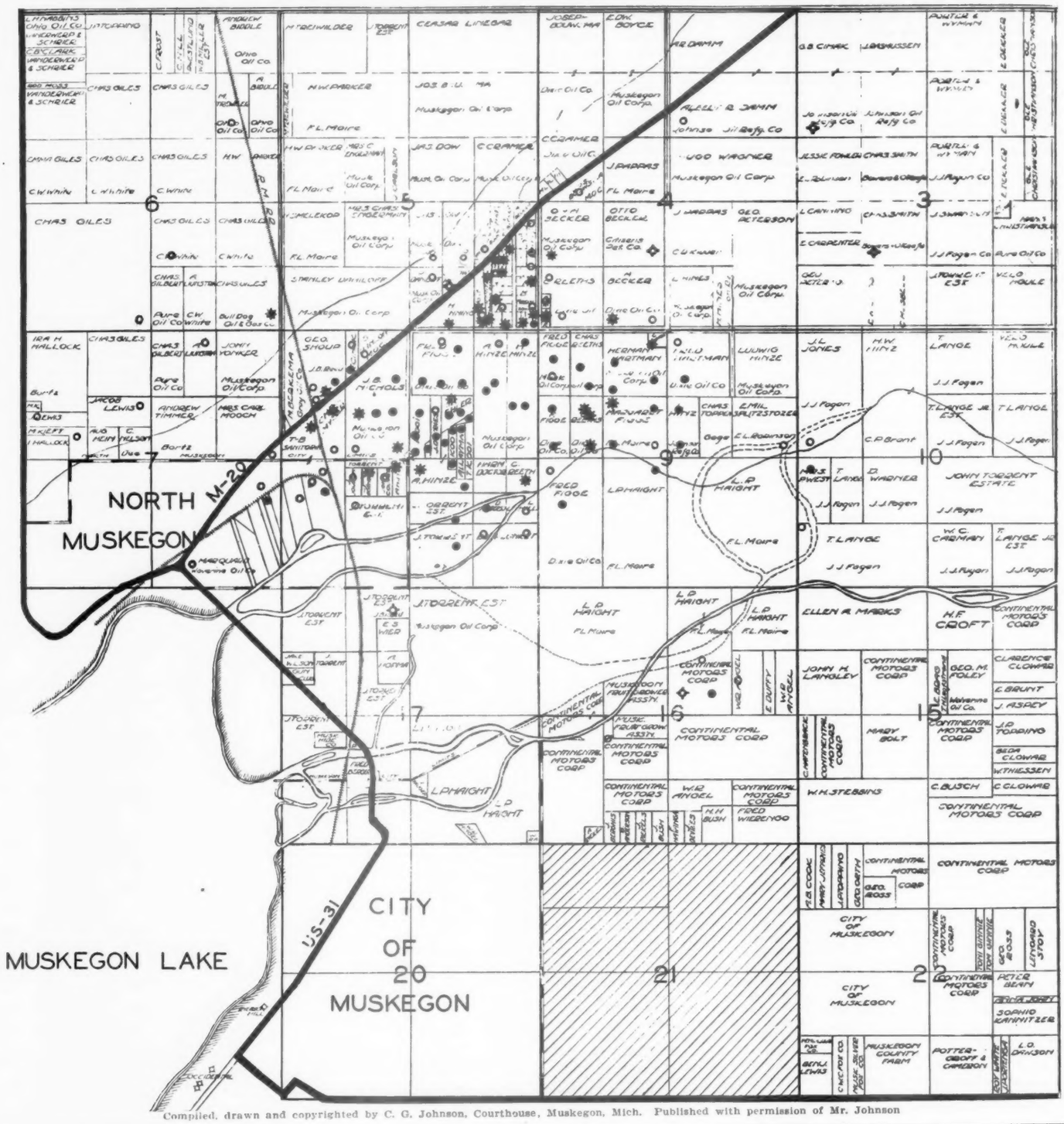
PECOS COUNTY
Week Ended November 6

Company and lease—	Wells	Bbls.
California Co.:		
Yates—Lease 1	17	6,719
Smith—Lease 1, Sec. 37	3	421
Smith—Lease 1, Sec. 23	3	220
Smith—Lease 2	2	176
Smith—Lease 3	12	1,768
Tippett—Lease 1	1	9
Cosby Drlg. Co.:		
M. A. Smith	1	off
Gulf Prod. Co.:		
All leases	31	9,980
Humble O. & R. Co.:		
M. A. Smith	10	1,388
Smith-B	5	660
Kirby Pet. Co.:		
J. H. Tippett	1	43
Kirby Pet. & Edson:		
J. H. Tippett	1	129
Marland Oil Co.:		
Yates-A	10	2,053
Matador Oil Co.:		
Smith	2	71
Mazda & Savoy:		
Smith	2	200
McMan Oil & Gas Co.:		
Smith-A	1	676
Smith-B	4	1,174
Smith-C	2	151
J. H. Tippett	3	247
McMan & Marland:		
Yates	17	3,239
Mid-Kansas-Transcontinental:		
Yates-A	24	9,015
Yates-B	25	4,789
Yates-C	9	3,353
Yates-D	6	6,503
Yates-E	1	120
Yates-F	2	650
Yates-G	4	1,093
Yates-H	6	5,229
Smith	2	310
Smith-Taylor	18	1,833
Oil Operators Trust:		
Pecos River	7	750
Phillips Pet. Co.:		
Smith	1	83
Red Bank Oil Co.:		
Smith	4	21
Roxana Pet. Corp.:		
Tippett	11	1,755
Smith	9	1,455
Smith-B	1	158
Smith-D	2	287
Simms Oil Co.:		
Smith	7	4,322
Skelly Oil Co.:		
Tippett	1	101
Texon Oil & Land:		
Yates	2	0
Total Yates Field	271	71,151

Winkler County

Company, farm, section and block—	Wells	Prod.
Amerada Pet. Co.:		
Cowden, 3, B-12	1	480
Atlantic O. P. Co.:		
Henaricks-A, 34, B-5	8	1,076
Henaricks-B, 44, 26	3	471
Henaricks-D, 29, B-5	8	2,096
Henaricks-E, 41, B-5	3	1,587
Henaricks-G, 40, 26	6	2,681
Henaricks-H, 30, B-5	1	80
Atlantic & Collett:		
Henaricks-F, 40, 26	12	8,655
Atlantic & Kesslar Logan:		
Leck, 3, 74	1	610
Bankers Prod. Corp.:		
Hendricks, 30, B-5	1	177
California Co.:		
Hendricks, 29, B-5	8	1,552
Cranfill & Reynolds:		
Hendricks-A, 28, B-5	2	525
Hendricks-B, 35, B-5	1	112
Hendricks-C, 33, 26	2	2,109
Hendricks-D, 33, 26	1	219
Hendricks-E, 33, 26	2	590
Eastland Oil Co.:		
Hendricks, 35, B-5	2	531
Hendricks-B, 35, B-5	1	99
Empire G. & F. Co.:		
Daugherty, 3, 74	1	520
Gulf Prod. Co.:		
Hendricks-A, 34, B-5	12	3,375
Hendricks-B, 45, 26	10	8,485
Hendricks-C, 40, B-5	5	2,175
Humble O. & R. Co.:		
Hendricks-A, 34, B-5	16	4,951
Hendricks-B, 29, B-5	6	1,061
Hendricks-C, 32, 26	8	1,130
Hendricks-D, 47, 26	4	1,052
Independent O. & G.:		
Hendricks-A, 34, B-5	7	1,922
Howe-B, 44, 26	2	205
McCabe, 36, B-5	2	310
Hendricks, 42, B-5	1	20
Vardeman-B, 41, B-5	6	1,587
Magnolia Pet. Co.:		
Hendricks, 29, B-5	8	907
Marland Oil Co.:		
Hendricks, 33, 26	4	6,142
Hendricks-A, 29, 26	1	279
Hendricks-B, 34, 26	1	Off
Mining and Engineering:		
Hendricks, 10, B-12	1	Off
Murchison & Cranfill:		
Hendricks-A, 35, B-5	3	205
Hendricks-B, 35, B-5	3	1,581
Hendricks-C, 35, B-5	1	58
Hendricks-A, 33, 26	1	1,989
Hendricks-I, 34, 26	2	507
Prairie Oil & Gas:		
Hendricks, 40, 26	6	3,512
Pure Oil Co.:		
Hendricks-A, 41, B-5	10	2,820
Hendricks-B, 34, B-5	13	2,701
Hendricks-C, 45, 26	8	6,853
Republic Prod. Co.:		
Hendricks-A, 45, 26	3	1,947
Hendricks-B, 41, B-5	5	1,732
Hendricks-C, 42, B-5	5	628
Richardson et al:		
Stockton, 50, F	1	1,084
Roxana Pet. Co.:		
Scarborough, 1, C-22	2	Off
Hendricks-A, 45, 26	6	4,350
Hendricks-B, 29, B-5	6	1,273
Hendricks-C, 29, B-5	8	1,588
Hendricks-D, 41, B-5	6	1,250
Hendricks-E, 40, B-5	3	1,170
Hendricks-F, 46, 26	7	1,830
Hendricks-G, 39, 26	1	115
Roxana-Texas:		
Cowden-A, 3, B-12	4	1,730
Hendricks, 45, 26	6	2,520
Hendricks-A, 29, B-5	9	2,540
Hendricks-B, 40, 26	6	1,760
Hendricks-C, 40, 26	6	4,230
Hendricks-D, 40, 26	6	1,910
Hendricks-E, 40, 26	3	1,460
Skelly Oil Co.:		
Hendricks, 40, 26	12	8,112
Hendricks-B, 39, 26	1	Off
So. Crude O. P. Co.:		
T-67 Hendricks-A, 42, B-5	3	288
T-67 Hendricks-3-A, 4, B-12	4	1,020
T-67 Hendricks-B, 44, 26	3	760
T-67, Hendricks-3-B, 33, 26	4	741
T-67 Hendricks-C, 33, B-5	5	751
T-67 Hendricks-2D, 28, 26	1	742
T-67 Hendricks-E, 42, B-5	4	282
T-67 Hendricks-F, 33, B-5,	4	990
T-68 Hendricks-3-A, 35, B-5	3	426
T-88, Hendricks-A, 44, 26	4	802
T-88, Hendricks-B, 4, B-12	2	567
T-88 Hendricks-C, 29, B-5	7	1,021
T-88 Hendricks-H, 28, 26-5	4	931
T-88 Hendricks I. 30, B-5	5	1,010
T-88 Hendricks-D, 4, B-12	1	300
T-88 Hendricks-J, 30, B-5	3	1,121
T-88 Hendricks-K, 41, 26	3	866
T-88 Hendricks-L, 4, B-12	1	466
T-88 Hendricks-M, 33, 26	21	7,821
T-88 Hendricks-N, 28, 26	2	870
T-88 Hendricks-P, 28, 26	1	361
T-88 Hendricks-S, 34, 26	2	1,190
T-88 Hendricks-T, 34, 26	4	570
T-88 Hendricks-U, 41, 26	4	1,420
T-89 Hendricks-A, 35, B-5	3	291
T-89 Hendricks-B, 35, B-5	2	770
T-89 Hendricks-F, 40, B-5	1	220
T-90 Hutchins, 47, 26	1	240
Texon O. & G. Co.:		
Hendricks-A, 41, B-5	6	860
Hendricks-B, 45, B-5	5	1,510
Winkler O. P. Co.:		
Hendricks, 33, 26	1	333
Total Winkler County	412	148,826

MAP OF A PART OF THE MUSKEGON, MICH., FIELD



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DIVIDEND REDUCED BY ANGLO PERSIAN

By Charles E. Kern

WASHINGTON, D. C., Nov. 10.—Announcement of the Anglo-Persian Oil Co., Ltd., the largest purely British oil producing and marketing company, of a dividend of 7½ per cent on the ordinary shares for the year ended March 31, 1928, recalls passage of its interim dividend for the year in question and expectations that the final dividend for the year would show a reduction over the preceding years in view of the low priced levels which have prevailed for oil products during recent months, according to the Department of Commerce.

Actually the dividend for the past fiscal year represents a reduction of 5 per cent from that in the preceding year, and is 10 per cent less than that paid in the year 1925-1926, when in addition to 17½ per cent dividend, the shareholders also received a capital bonus of 50 per cent. The amounts placed to reserves are also £500,000 less in the past fiscal year than in 1926-1927, and £1,000,000 less than in 1925-1926. The actual amounts placed to reserve are £800,000 in 1927-1928, £1,300,000 in 1926-1927, and £1,800,000 in 1925-1926.

In spite of expectations of a reduced dividend the market quotations for Anglo-Persian shares have recently appreciated, due probably to the expectation of better results in the near future, rather than because of present earnings. At present quotations the ordinary shares yield less than 2 per cent on the basis of the latest dividend, the department is informed by Trade Commissioner Homer S. Fox.

Recent announcement of the acquisition of a large block of Shell Transport & Trading Co. shares by the Burmah Oil Co., Ltd., has been followed by a further development in closer co-operation between the Anglo-Persian and Royal Dutch-Shell Oil Co. groups. This has taken the form of the consolidation of the marketing interests in the East of the Anglo-Persian Oil Co. and the Asiatic Petroleum Co., Ltd., the latter one of the leading Royal Dutch-Shell concerns, through the formation of a new company under the title of the Consolidated Petroleum Co.

It is understood that the Anglo-Persian and the Asiatic will have equal representation in the new concern, which is to take over the facilities and installation of both companies in the Near East, in Ceylon, and in the south of East Africa. The Burmah Oil Co., Ltd., which is the leading shareholder, outside the British government, in the Anglo-Persian Oil Co., Ltd., had already consolidated its oil marketing interests in India with those of the Royal Dutch-Shell group operating in that country. It is probable that these developments will be followed by others tending to consolidate still more the interests of these two leading oil producing and marketing groups.

Discussions of Engineering Problems

EDITED BY R. VAN A. MILLS, PETROLEUM ENGINEERING EDITOR

IMPORTANCE OF CROOKED HOLE PROBLEM

Discussed by H. B. Goodrich of Tulsa

Your contribution in the August 23 issue of The Oil and Gas Journal, with title, "Crooked Holes Discussed by Engineers," and another in the same issue, "Crooked Holes Cost Industry Vast Sum," by J. L. Dwyer, are very interesting. Your presentation of facts which are not generally available to the man in the street leaves very little uncovered in a subject which should not nochalantly be passed over by the oil producer. And since the well is the source basis of the oil industry, anything generally wrong with the hole in the ground, or any widespread uncorrected error of economic procedure must indeed interest every class of the industry: geologist, production and valuation engineer, field worker, driller, producer and financier, all along the line.

The various points are taken up thoroughly and the discussion is based on the premise that a vertically drilled well is the exception. This is supported by direct evidence, such as numerous cases of well interference, and by the indirect evidence afforded by the behavior of so-called "freak" wells. There is, of course, really no such thing as a freak well. There are definite reasons for the behavior of every well, but they are not always identified. All wells are more or less crooked, and this probably plays an important part in their behavior. The premise is thus stated on page 30 of the August 30 issue of The Oil and Gas Journal:

"By the nature of deep drilling operations it is impossible to drill a vertical hole to any considerable depth. The perfectly vertical hole, like the mathematically straight line, is only a creation of human imagination."

See also Mr. Dwyer in the same issue: "In fact, it has long been contended that there never was a well drilled which was absolutely vertical."

The present writer submits that the experienced oil-development man generally accepts this. If accepted, the subject can be divided into three main lines of discussion:

Important Considerations

1. Causes for crooked holes.
2. Proper methods of ascertaining the exact position of the drilled hole at various depths; not only its actual deflection from the vertical, but its deviation to various points of the compass, for holes do wander around the map.
3. Proper method of eliminating crookedness of holes by either:
   (a) Preventive methods; keeping the hole straight during the drilling; or,
   (b) Corrective methods; straightening a crook after it has occurred.

There is a voluminous literature on all the above subjects, and in your contribution you have covered all, point by point, with the exception, perhaps, of division 3-b in my outline. Under this last there have been numerous practical applications and many engineering discussions. Much more progress will undoubtedly be effected on the corrective end of the problem. The main thing, however, is to prevent the evil before it has happened, and suggestions are therefore of constructive value.

As to causes of crookedness, it is noted that the defects of present drilling methods are primarily due to competition. Either the operator wants to beat his neighbor to it, to complete a well quickly and get returns on his investment. Or take it further, from the drilling contractor's viewpoint; he, again in legitimate competition with other contractors, will at all times be tempted to ignore the latest tenets of the disinterested engineer if he can only complete a well satisfactorily to his employer in the shortest time. Time is the main consideration under the competitive regime.

Now, while this is perfectly true, the carelessness of workmanship which is due to haste is a comparative term. We are perhaps too prone to pass the buck and to accuse a driller working diligently, under circumstances beyond his control, if results are bad. Conditions which often nullify the best efforts of a good, careful driller and make a hole go wrong are, as you state, dip, faulting and fracturing of strata, changes in character of formation from soft to hard and hard to soft. One may, as recommended and discussed, guard against excessive weight on drill pipe or bit, and against other evident surface mechanical trouble, but underground conditions cannot always be directly and immediately visualized or predicted. Accurate subsurface scientific work has revealed that in our Mid-Continent fields there are often more formational disturbances than are to be found on the surface. Then, for instance, if there is a dip, faulting or fracture, experience has shown that the cutting drill bit tends to deflect generally not down the dip incline, as would first be supposed, but at right angles to it. Under immediate excessive weight the crook takes place. Also, as to the character of formations, hard or soft, we must recognize that no oil or water sand is of homogeneous hardness or texture throughout. The driller may conscientiously report 50 feet of sand. But how much of that may be taken up by shale breaks, harder and softer streaks, any of which changes are due cause of deviation? The engineer is the properly qualified one to determine this. When the driller is also an engineer, the questions may be answered at once and remedies applied, but without special guiding advice there may later come bad seating of casing, water trouble and an abandoned hole; or, if a producer, the increased expense of operating a crooked hole.

My conclusion, based on compilation of published facts, is that careless haste is indeed responsible for a large percentage of crooked holes. However, on the other hand, human vision is limited to slight depths in a drilling well and, therefore, invisible and unforseeable conditions underground often make the human being, however careful and conscientious, a victim of this mortal prescribed vision. The antidote for this is constant watchfulness and the engineering interpretation of observed facts and application, not along lines of standardized rules, but adapting one's procedure to fit the requirements of each particular case.

Now, it is noted that most writers on crooked holes assume that cable-drilled deep wells are vertical, while rotary holes are the ones that yield to temptation and stray (often very widely) from the straight, vertical path. Is that assumption entirely just?

Apparently, in your article, the rotary method is exclusively referred to all through, although on page 30 you appear not to distinguish between the two drilling methods, for you say, in explaining deviation of rotary bit: "So it is with any rotary drill bit; even cable tools must be rotated to make hole."

Drilling Methods

The writer thinks of the drilling methods now in use about as follows:

1. Diamond core.—This was invented about 1865. Some producing oil wells have been diamond drilled in Mexico and elsewhere; but in petroleum work, whatever the future may bring forth, its present important value is more for geologic testing and prospecting than for actually drilling producing wells.

2. Rotary.—The oil-field rotary came as an evolution from the diamond drill. In Louisiana the driller put a fishtail bit on the end of a rotated drill pipe and applied mud fluid to wall back loose, cavy formations. The rotary method, with its modern improvements of rock bits and coring devices, has earned a most prominent place in our fields, coming by steps from the Gulf Coast to California, and eventually to the Mid-Continent.

3. Cable tools; the gravity percussion method.—In using the two rotating methods, which I rightly or wrongly distinguish from the cable tool, there is a steady pressure on the bit. For this reason there may be a comparatively greater tendency to deflect than with the cable tool when the rotary bit grinds on any obstruction, such as dip or fault plane, a cross-bedded sandstone, hard or soft change of stratum, or any junk in the hole. And, yet, while the effect is accentuated in the rotary method, the same tendency must to a certain extent exist mechanically in case of a set of jars, stem and bit pounding (rotating, too) and cutting hole at the end of 2,000 feet or more of cable. To bring out these points the writer compiled, as shown, six published cases, two of each class.

Examples of Crooked Holes

The first two examples are from old records of diamond-drilled holes in Africa intended to cut the underground extension of a vein. They represent ancient history, and it is not thought that diamond drillers of today would tolerate such deflection from the vertical unless such an inclinded hole was desired.

In Case No. 1 measured deflections from the vertical varied from 4 degrees 30 minutes at 500 feet measured depth to 60 degrees at 4,000 feet. The last means a drift of 173 feet per 100 feet drilled, but the accumulated deflection brought the bottom of the hole 2,185 feet from the vertical at a depth of 4,802 feet measured, the actual vertical depth at that point being 3,910 feet.

Case No. 2, another South Africa example. Vertical deflections varied from 0 degrees at 1,000 feet to 58 degrees at 6,600 feet. This last means a drift of 160 feet per 100 feet of vertical depth drilled. The actual vertical depth at 6,200 feet was 4,813 feet, while the drift of the hole was 3,632 feet from the point vertically beneath the mouth of the well.

Cases Nos. 3 and 4 are rotary-drilled holes in California, of which very detailed surveys were made.

Case No. 3.—The deflection from vertical varied at points ranging from 0 degrees 30 minutes to a maximum of 28 degrees 40 minutes at 6,860 feet. At a recorded depth of 6,920 feet the actual vertical depth is said to have been 6,815 feet. The course of the hole wandered. Its maximum drift was 517 feet from vertical at 6,000 feet. At 6,950 feet it was about 340 feet off vertical.

Case No. 4.—The varying measured angles of deflection attained a maximum of 11 degrees off vertical at 2,062 feet. The drift carried the bit to about 300 feet off the vertical at 5,295 feet.

Cases Nos. 5 and 6 are two cable-drilled holes, the first of which at 7,756 feet was until about two years ago the deepest well in the world. The surveys of these two were not as detailed as the before-mentioned holes. However, if any general comparison can be made from these four cases to apply on the question of crooked holes, it should be noted that, while the cable-drilled well may keep straight longer, it does go wrong to about the same extent as the rotary-drilled well at great depth.

Case No. 5.—The first measurement reported at 3,295 feet showed the hole vertical. The next of record at 5,800 feet gave 2 degrees 18 minutes off vertical. Thence downward it increased to a maximum of 27 degrees 42 minutes at 7,651 feet, and at 7,751 feet it was 24 degrees 16 minutes off vertical.

Case No. 6.—The angle off vertical first recorded at 1,926 feet was 1 degree 9 minutes. At 6,839 feet the angle as measured was 28 degrees 47 minutes off vertical. The total depth of this well was 6,989 feet.

It is not assumed that any of the above adds much, if anything, to the subject of crooked holes, but it seems to the writer that this subject is of fundamental importance and worthy of considerable thought and discussion by engineers and organizations well qualified for research work.

Editor's Remarks

This excellent discussion by Mr. Goodrich is valuable to many who are interested in the crooked hole problem. He assembled a wealth of information upon the subject and presented an excellent paper upon it before the Geological Society of Tulsa in December, 1926. This paper appears in print for the first time on page 38 of this issue. Mr. Goodrich has been most generous in his assistance to the writer, for which grateful acknowledgment is made.

THE CROOKED HOLE PROBLEM FURTHER DISCUSSED

By W. R. Martin of Long Beach, Calif.

The article on the crooked hole problem by R. Van A. Mills, appearing in the August 23 issue of The Oil and Gas Journal, has caused a great deal of favorable comment, both on account of the importance of the subject and the able manner in which it was handled. The further discussion by W. R. Cummings in the issue of September 13 proposes that a torque control can, and no doubt will, be improved. This is fine, but if the torque is controlled to the highest degree, it will in no way prevent excessive weights on the bit or, in fact, control the weight in any way.

I make the above statement backed by 28 years of rotary drilling experience. For instance, right in Mr. Cummings' territory I have drilled a number of wells. We encountered a very sticky shale that could only be drilled with a fresh (sharp) fish tail just touching the bottom and shaving it; and, believe me, it sure turned hard. Here there was all torque and no weight. The other extreme, in the same territory we had about 200 feet of hard, close lime which seemed to take on a glazed surface or polish. All the weight could be put on the bit and the pipe would turn very easily. Here there was all weight and no torque.

It is my opinion that torque control may enter into the problem to some minor extent, but the crooked hole may be avoided, almost entirely, if the weight on the bit is not excessive and is controlled. The weight can be controlled by the use of the modern weight indicator and, using a few lines from Mr. Mills' article: "We need automatic weight controls and weight indicators. We have them, so why not use them?"

GASOLINE PRICES CONTINUE DECLINE

(Continued from Page 36)

was reduced to within 3 cents per 100 of that from Oklahoma plants on fuel moving into the Chicago area. This means that shipments out of Big Spring to Chicago are penalized but 9½ cents per barrel as a freight differential, compared with Group 3. There have been sales made in this territory which have brought less than 30 cents a barrel, and one sale was mentioned at 22½ cents, which with the 9½-cent freight differential would place the equivalent Group 3 price at less than 40 cents per barrel. On December 12, a similar reduction in the rates out of Pyote will go into effect and the freight rate differential between that point and Oklahoma on fuel shipments destined for Chicago will be reduced to 4 cents per 100 pounds or 12.4 cents per barrel. The outcome of these rate changes remains problematical but it is very likely the West Texas refiners will advance their prices in proportion to the freight savings, leaving the delivered cost unchanged but in no way can the change be interpreted as lightening the Oklahoma refiners' fuel problem.

Gasoline and Naphthas

All grades of gasoline were reduced by the close of the week and some very low prices were being paid on scattered orders. Much of the North Texas and some Oklahoma 58-60 437 endpoint gasoline moved during the week at 8¾ cents and there was some material offered brokers at 8⅝ cents. The weighted average price reported by Oklahoma refiners covering sales made on Monday of this week and last are shown below for the more important grades.

Grade—	Price Nov. 12	Price Nov. 5
58-60 437 endpoint	.0933	.09568
60-62 437 endpoint	.0950	.09900
60-62 400 endpoint	(*)	.10250
64-66 375 endpoint	.1075	.11000

*No sales reported.

Naphtha sales continued at no more than a normal rate, prices slipping off in proportion to the reductions made in gasoline.

Natural Gasoline

All grades of natural gasoline sold under the prices quoted last week and the future of the market is not viewed as encouraging. No one expects a decided change but a gradual reduction is anticipated, following the trend of refinery prices. There was no new spot buying for export shipment, and with refiners holding their purchases close to their minimum requirements, the movement of material was necessarily slow.

Kerosene and Distillates

Except for the export buying done in North Texas over the past week, that market was also inactive. There was a sufficient relief given that market, however, so that spot material was offered less freely. High sulphur content kerosene sold at prices as low as 5¼ cents, and the 5½-cent material was very freely offered by the smaller plants. Refiners making the long-burning grades were able more easily to move their production even at the higher price.

Distillate again representted a large share of the total shipments from those plants making it, and while the general fuel oil market is holding prices to a low level, that is about the only product showing promise of strengthening over the immediate future.

Gas Oil and Fuel Oil

Prices remained unchanged on both gas oil and fuel oil, the possibility of still lower prices becoming more certain by the lowering of freight rates to Chicago points out of the West Texas area. With gasoline prices weakening it is possible that crude runs will be reduced, and this will help to hold the present level of fuel prices, but as yet the outcome is as indefinite as ever.

Lubricants and Wax

All grades of lubricants showed a further tendency to weaken. The price reduction of two weeks ago did not stop the practice of offering discounts on the larger orders and as the lesser seasonal demand approaches, refiners are shading prices to move production.

Wax has remained unchanged, and the 122-124 M.P. wax is generally sold at 5 to 5¼ cents in barrels. There is possibility of a further strengthening of that market as the benefit of this week's advance is felt on the Atlantic Seaboard, but as this came somewhat as a surprise, it is more likely the advance will simply act to stay any reduction in price here.

Late Fields

(Continued from Page 46)

time was the showing of oil found in the Ellis County wildcat well of the Phillips Petroleum Co. The well is No. 1 Schultz, C NE, Section 5-12-17w, and the latest information from the well gives the pay record as 3,573-75 feet. This pay is reported to be a lime, and the well has approximately 2,000 feet of oil in the hole.

The identity of the formation which carries the oil is not complete, and opinion differs, some claiming that it is the Oswalt lime while others hold that it is deeper than that horizon.

The well is 12 miles north of the town of Hays on the Union Pacific Railroad, and 14 miles west and slightly north of the Russell Pool of Russell County. According to reports it will not be drilled any deeper for the present.

In Rush County, Danciger-Valerius & Cheney's No. 1 Schuerman, NW cor. SE NW, Section 27-17-17w, has increased its gas from 5,000,000 to 8,000,000 feet after being drilled 2 feet deeper to a new total depth of 3,579 feet. Top of the pay was 3,575 feet. The owners are undecided as to whether to drill the well any deeper, or complete it for a gas well.

ASSOCIATION IS FORMED BY SANTA FE OPERATORS

(Continued from Page 40)

and a greater conservation of gas effected, by flowing wells against a back pressure controlled by flow plugs or beans, and

"Whereas, it has been demonstrated that natural gas performs a two-fold function in producing oil,

"1. By decreasing the viscosity of the oil occurring in the sands, and

"2. By furnishing the energy necessary to bring the oil to the well and flow said well.

"Therefore, the Committee on Curtailment of Santa Fe Springs Gas Production recommends that a uniform practice of back pressuring in all wells in the Santa Fe Springs Field be adopted for the purpose of conserving gas and materially reducing the amount of gas currently produced, so as to meet the demands of the governor's Gas Conservation Committee and to increase the ultimate recovery of oil.

"In order to accomplish this in a manner fair and equitable to all operators and others owning wells or having an interest in the production of oil and gas therefrom, it is necessary that the procedure for gas conservation shall be uniformly accepted and followed by all operators.

"For this purpose the Committee on Curtailment of Santa Fe Springs Gas Production recommends to the operators of the Santa Fe Springs district the following plan of action:

"1. That all new wells completed at Santa Fe Springs be produced through tubing.

"2. That all wells be equipped with high-pressure casingheads and fittings capable of withstanding 2,000 pounds test pressure, or better.

Proration Plan

"3. That whenever the gas production at Santa Fe Springs exceeds the usages in the field and the demands of the gas companies and the demands of repressuring and storage projects so that an actual surplus exists each flowing well producing from zones lower than the Meyer zone shall be pinched back by a percentage of its net oil production to be set by a Control Committee, to be appointed by the Santa Fe Springs operators; the percentage cut to be uniform and applicable alike to all such wells; that each new flowing well brought in from zones below the Meyer zone be allowed to produce normally for 15 days, and that thereafter each such well shall be pinched in at the end of 15 days the total percentage cut then in effect; that said percentage cut shall be applied on the average production of the well during the last five days of said 15-day period; that if any well subject to cut shall develop pressures or mechanical conditions which prohibit the entire percentage cut then due, the company possessing such well shall make additional cuts on other wells to obtain the equivalent barrelage cut due well in question.

"4. That the Control Committee may change the percentage of cut at its discretion whenever the conditions warrant, by adding additional cuts or by reducing cuts already in effect, the same to be applicable alike to all wells.

"5. That the foregoing program shall be accepted in writing by all operators owning or operating wells in the Santa Fe Springs Field.

"6. That upon acceptance of the foregoing plan, the Control Committee shall issue the necessary instructions to carry this program into effect at the proper time; that the operators of the field will furnish this committee with the necessary information as to their daily production and other pertinent data asked for by said committee and that this committee is authorized to call upon and be furnished by all marketing companies, pipe line companies and others running or removing oil from the Santa Fe Springs Field, oil runs to determine the deliveries of all operators in the field, for the purpose of establishing complete compliance with this program.

"7. That this program shall continue in effect for six months from the date set by the Control Committee for the beginning of the curtailment. If one month prior to the end of the six months period it appears to the Control Committee that the emergency will still exist at the end of the period, the Control Committee shall so notify the Santa Fe Springs operators in order that measures may be taken to extend the period."

PENNSYLVANIA GRADE CRUDES HAVE ADVANCED 85 CENTS SINCE JANUARY 1

All Pennsylvania grade crude oils were advanced in price 15 cents per barrel on Friday, November 9. This was the fifth advance since the first of the year. The last previous increase was made on September 15.

The new price makes Allegany and Bradford crude oil $3.65 per barrel. Other Pennsylvania crudes, $3.50; West Virginia crude, $3.40, and southeastern Ohio crude, $3.25. The above are the prices paid by the Joseph Seep Purchasing Agency, which is the buyer for the South Penn Oil Co., the largest purchaser of Pennsylvania grade oils. This company has advanced the price paid the first of the year by 85 cents per barrel.

The constantly increasing demand for lubricating oils made from Pennsylvania grade crude has in turn increased the demand for the crude oil itself. This oil is produced in fields ranging from 69 years old down to comparatively recent date, but most of the territory in which the oil is produced has been almost completely defined and there is little left but to drill old leases and to increase the production of old wells by modern scientific methods.

Had it not been for the improvement in production methods this old territory could not begin to produce the quantity of oil which is now demanded of it.

In the past five years alone, even though the territory was then considered old and defined, the daily average production of Pennsylvania grade oil in southwestern New York has increased from 3,387 bbls. to 7,100 bbls.; Pennsylvania from 19,774 bbls. to 26,600 bbls., and southeastern Ohio from 13,548 bbls. to 13,900 bbls. West Virginia has declined in production from 18,097 bbls. to 14,900 bbls. The figures given are the daily average production of September, 1923, and September, 1928. The total in September, 1923, was 54,806 bbls. per day and in September, 1928, 62,500 bbls.

The water drive and repressuring with gas and with air, and the better care of wells and leases has been responsible for the increase in production which is slowly but steadily increasing, particularly in the Allegany Field in New York and the Bradford Field in northwestern Pennsylvania.

The cost of producing a barrel of oil in this old territory is so high that the crude must command a price greatly in excess of that paid for the same gravity oil in the Mid-Continent, but the present price paid is expected to stimulate drilling and there is no danger of an increase great enough to flood that market in the face of the increasing demand by motorists for Pennsylvania lubs.

The new prices, in effect on November 9, are as follows:

Penna. grade oil in New York Transit Co. lines	$3.60
Bradford district oil in National Transit Co. lines	3.60
Penna. grade oil in National Transit Co. lines	3.50
Penna. grade oil in Southwest Pennsylvania Pipe Lines	3.50
Penna. grade oil in Eureka Pipe Line Co. lines	3.40
Penna. grade oil in Buckeye Pipe Line Co. lines	3.25

Pacific Western Co. Formed to Take Over Doheny Properties

NEW YORK, Nov. 12.—A new company, headed by Jacques Vinmont, formerly president of the California Petroleum Corp., is being formed to take over most of the Doheny oil properties in California.

The announcement was made by Blyth, Witter & Co. of San Francisco, and J. and W. Seligman & Co. of New York, who said they were negotiating with Mr. Doheny for the purchase of virtually all of the oil-producing properties in California owned by the Petroleum Securities Co., which Mr. Doheny and his family own.

A valuation of the property at $43,000,000 made by an independent engineer was cited. In case the negotiations are concluded, about $30,000,000 of the securities of the projected company will be offered. The properties total more than 40,000 acres in southern California. The present production from a small part of the properties is approximately 17,000 bbls. a day.

The new company probably will be called the Pacific Western Oil Co. Mr. Vinmont is expected to become chairman of the board, and William C. McDuffie, formerly production manager of the Royal Dutch Shell group, president. J. C. Anderson, former president of Pan American Western Petroleum Co., is also reported interested. The new company will be strictly a producing company at the start, and will take over from the Doheny interests a contract for the sale of all its production up to 20,000 bbls. daily to the Richfield Oil Co.

This transaction, if consummated, practically will end a series of transactions whereby Mr. Doheny has been disintegrating his vast system of oil producing, refining and marketing properties, formerly concentrated in the Pan American Petroleum & Transport Co.

Control of the Pan American & Transport was sold in 1925 to the Standard Oil Co. of Indiana interests, nd this year control of the Pan American Western Pe-

troleum Co., which was sold to the Richfield Oil Co.

The negotiations are for only the producing fields in California held by the Petroleum Securities Co., and do not include certain refining and other properties.

A dispatch from Los Angeles say that, while refusing to comment in any way on reported prospective sale of the properties of the Petroleum Securities Co., R. M. Sands, representative of E. L. Doheny, states that Mr. Doheny has no intention of retiring from the petroleum industry.

"Mr. Doheny is still active and vigorous," said Mr. Sands. "His physical condition was never better. There is no reason why he should even consider retiring from active participation in an industry in which he is one of the pioneers and in which he is still so deeply interested."

ANGLO-PERSIAN REPORT ON YEAR'S OPERATIONS

Sir John Cadman, chairman of Anglo-Persian Oil Co., Ltd., said at the company's annual meeting that the success of measures to effect permanent economies is shown by the fact that the decline in profits, though serious, did not increase despite a fall of 4 pence a gallon in gasoline price between February and August, 1927.

It is proposed to alter the company's financial year to coincide with the calendar year and the next statement will be for nine months ending December 31.

Production last year in the Masjidi Suleiman was 5,300,000 tons. It is estimated current year's taking will exceed 5,500,000 tons, but potential yield is in excess of this figure. Initial production of first well in new field at Haftkel, Sir John said, is estimated at 800 bbls. daily, closed in, and drilling is proceeding to test dimensions of the new field.

Sir John said he welcomes co-operation of the American group on Turkish Petroleum Co. and hopes intercourse among representatives of so many important groups will help to promote an amicable understanding in a wider sphere of the industry. Recent drilling in Irak has met with decided success, but depth of wells and high gas pressure make rapid drilling difficult.

Anglo-Persian's gasoline sales show gratifying expansion and cost of distribution has been reduced, with further reductions in prospect, Sir John said. He added that in his opinion the British gasoline tax imposes little or no check on consumption. Steady progress is being made in sales on the Continent.

"It is no secret that representative leaders of the petroleum industry have been closely considering the problem of overproduction," Sir John said. "One direction where reforms might be made without detriment to general producing and marketing interests of the leading oil organizations is by each drawing upon the nearest sources of supply, thereby effecting enormous economy in transportation. By co-operation it should also be possible to eliminate excessive multiplication of selling agencies."

The recent agreement with the Burmah-Dutch Shell group will give Anglo-Persian a substantial share of the Indian market for all products, including kerosene and gasoline; previously its sales there were confined to fuel oil. Agreement with Asiatic Petroleum Co. on distribution in Egypt and South Africa affords recognition of the principle of drawing upon the nearest sources of production.

"Influence upon the company's earning by increased turnover and important economies already is becoming cumulative in effect," Sir John said. "Provided we are right in believing prices have touched low water mark, we are justified in hoping that the close of the current period will be market by no unsatisfactory results and the succeeding year may inaugurate an era of steadily expanding profits."

RADIO CHAIRMAN WOULD BAN USE IN PRIVATE GEOPHYSICAL RESEARCH

By C. E. Kern

WASHINGTON, D. C., Nov. 13.—When the Federal Radio Commission met today to consider the geophysical aspects of the law applying to radio communication as used by the oil industry the following witnesses on behalf of the oil industry were present to testify: E. L. DeGolyer, Amerada Petroleum Corp. and Geophysical Research Corp.; George Otis Smith, United States Geological Survey; Wallace Pratt, Humble Oil & Refining Co.; E. A. Eckhardt, Marland Companies; J. C. Karcher, Geophysical Research Corp.; C. M. Jansky, junior technical advisor to petroleum companies; D. J. Moran, Marland Companies; Doctor Lee, United States Bureau of Mines, and R. Ogarrio, The Texas Company.

There was consensus of opinion in respect to the vast importance to the oil industry of geophysical methods used in the discovery of petroleum on the part of the witnesses appearing before the commission.

Before the morning session was completed, Chairman Robinson announced that he believed the testimony had fully established the importance of geophysical methods of exploration involving the use of radio and suggested that further testimony along that line seemed unnecessary.

The chairman made clear, however, his position that the air belonging to the Government should not be open to the utilization of private companies for geophysical or any other purpose except in cases in which the user of such radio communication should be a public utility with its facilities open to all persons and that its rate should be subject to public regulation.

Against this view expressed by the chairman was the uniform testimony of witnesses representing geophysical and oil interests indicating their conviction that only by competitive effort to improve geophysical methods could the oil industry hope to receive a maximum of advantage. All of the witnesses pointed out the fact that all geophysical methods are in a state of development and that there would be a lack of incentive on the part of a single public utility in the conduct of experiments to advance a knowledge of this scientific work.

E. L. DeGolyer, in concluding his testimony, stated that when he had advocated an appropriation by Congress to assist the Bureau of Mines and the Geological Survey in carrying on this work he was met by the directors of the budget with the statement that that was an activity that should be in the hands of private persons.

Thomas McEilean of New York, representing the Seismos Co., the American subsidiary of the parent German corporation, stated that in every other country of the world governments permitted the use of radio in the operation of a seismograph, the United States being alone in opposing its use by oil companies. Mr. DeGolyer and other witnesses declared that this prohibition was a discrimination against the American oil industry and hampered it in its efforts to locate oil.

Director George Otis Smith insisted that it was in the public interest to have located as large quantities of petroleum as possible as it would stabilize and keep down the price.

"To me," said Director Smith, "the public interest attaching to the oil industry is self evident."

NEW JERSEY STANDARD OFFICIALS TOUR FIELDS

A party of officials of the Standard Oil Co. of New Jersey is making a trip of inspection over the various properties owned by subsidiary companies in the Mid-Continent area. Leaving New York, the party reached Tulsa November 13 and spent the day in that city.

From Tulsa the party traveled to the Greater Seminole and St. Louis Pools of Central Oklahoma, and Tuesday night left for Houston, Tex., where the headquarters of the Humble Oil & Refining Co. were visited. From Houston, the schedule covered Dallas, Tex., and then to the fields of the Permian Basin in West Texas.

Starting eastward, the party will pay a visit to the Baton Rouge, La., refinery of the Standard Oil Co. of Louisiana, and then will start for New York.

The party included James A. Moffett, S. B. Hunt and E. J. Sadler, vice presidents of the Standard Oil Co. of New Jersey; C. G. Black, president of the Standard Oil Co. of New Jersey; Richardson Pratt, vice president of the Standard Oil Co. of New Jersey; Orville Harden, A. Clarke Bedford, F. H. Bedford, Jr., J. A. Mowinckel, H. G. Seidel, F. C. Shultze, Northrop Clarey, Merritt Loomis, J. A. Compton, E. P. Salisbury, A. G. Phelps, A. B. Gregory and Norman Baier.

JOHN HENRY LAMBERT DIES

CHATHAM, Ontario, Nov. 10.—John Henry Lambert dropped dead at Petrolia, Ontario, recently, in his sixty-fourth year. Mr. Lambert was a driller, having worked at different times in Poland, Russia, Persia, Newfoundland and Sumatra.

ON ILL-FATED VESTRIS

Four Oklahoma oil workers on their way to South American oil fields were passengers on the steamship Vestris which went to pieces off the Virginia capes the past week. The men are Arthur M. Jones, Ada, Okla.; Clyde A. Persful, Seminole; Lloyd Ricketts, Wirt, and Carl L. Pfaff, Seminole. Their fate was unknown at this writing. The men were employes of the Standard Oil Co. of New Jersey.

MICHIGAN TOWNS SEEK GAS FROM MUSKEGON

MUSKEGON, Mich., Nov. 10.—Existing utilities at Grand Haven and Grand Rapids, the nearest cities of any size that are hoping to use natural gas from the Muskegon Field, are taking steps to get this new business for themselves rather than allow new pipe line companies to be formed and to be granted franchises to operate.

The Grand Rapids Gas Light Co., a subsidiary of the American Light & Traction Co., has completed a 6-inch extension of its suburban lines as far as Sparta, 15 miles out, and is now laying a 4-inch line to Kent City, nearly half way to Muskegon.

The National Utilities Co. of Battle Creek, which serves Grand Haven and Spring Lake with manufactured gas, has requested that it be granted a franchise to extend its lines about 5 miles into the village of Fruitport, between Muskegon and the twin cities.

A special election will be held at Fruitport to determine whether the existing company is to be granted a franchise. Work already has started on the extension.

No further developments have taken place in the contest between three other new pipe line companies which are vying to see which shall be the first to pipe natural gas from the Muskegon Field to Grand Rapids via Fruitport, Spring Lake, Grand Haven and Coopersville. Franchises in each of these cities and villages have been obtained by different ones of the three, the Central Michigan Pipe Line Co., the Michigan Pipe Line Co. and the Shoup Oil & Gas Co.

Moffett Sees Large Increase In Foreign Consumption of Oil

Consumption of petroleum products is increasing rapidly in European countries and the American oil industry can expect to obtain its full share of the increased business according to J. A. Moffett, vice president of the Standard Oil Co. of New Jersey. Mr Moffett was a member of a party of Standard officials who spent the fore part of the week in Tulsa. The officials are inspecting properties of the Standard company and visited other Mid-Continent points.

Mr. Moffett, who has been connected with both the domestic and foreign market departments of the Standard of New Jersey for several years, has made a close study of market conditions in both European and South American countries. During the past summer he made an automobile tour of Germany, France and other countries.

In contrast to the situation a few years ago, Mr. Moffett said that the main highways of these countries in volume of motor vehicle traffic, resembled conditions in this country. The return to more stabilized industrial conditions has brought about a prosperity which is reflected in the number of cars being used for pleasure and commercial purposes. Mr. Moffett predicted a more rapid expansion in the future. He pointed to methods of handling traffic in some of the congested centers of Europe which are an improvement over the American traffic system, as indicating the interest being taken in motor transportation.

Asked whether the expansion of foreign crude oil production and refining facilities would not absorb this increased consumption of gasoline and other products, Mr. Moffett said he was confident that the industry in this country could at least hold the percentage share of this business that it has had in the past.

Mr. Moffett stressed the necessity of conservative operation on the part of the refining industry in the Mid-Continent and other refining areas during the next few months as a requisite to prosperity another year. Heavy crude oils runs to stills resulting in the accumulation of excessive stocks of gasoline during the winter season, he said, will endanger both the domestic and foreign markets next year and nullify the improved conditions brought about during the past few months.

Improvement in the crude oil situation is aiding in stabilizing the fuel oil market in coastal areas, Mr. Moffett said. Long-time contracts at low prices are no longer being made. The fact that West Texas crude oil production has been curtailed preventing additional surplus being thrown on the market has been an important factor in the improved fuel oil situation, in Mr. Moffett's opinion.

GAS PLANT CHANGES HANDS

CHATHAM, Ontario, Nov. 10.—The purchase has been announced by the Cities Service Corp. of New York of the lands and business of the Sterling Gas Co. of Port Colborne, Ontario, which has supplied Port Colborne and district with natural gas for the past 21 years. The new owners have extensive holdings in Ontario, including the Dominion Natural Gas Co., Ltd.; the United Gas Co., distributing in St. Catharines and Thorold; the Brantford Gas Co. of Brantford; and the Manufacturers Natural Gas Co. The addition of the Sterling holdings, it is claimed, makes the Cities Service Corp. controller of the largest group of gas companies in Ontario.

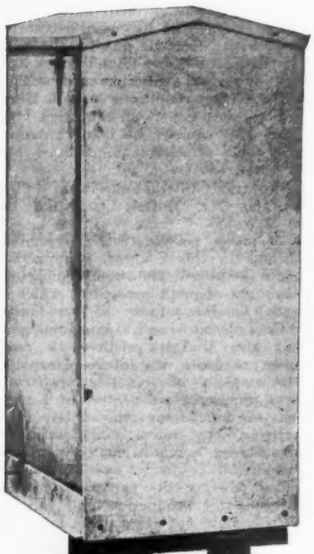
No announcement has been made regarding the purchase price or the plans for expansion, but it is understood the system will be considerably extended.

C. E. Steele, who has been secretary-treasurer and manager since the Sterling company was organized, and Marvin D. Steele, assistant manager for the past 12 years, will continue in office for the present. The Sterling Gas Co. was capitalized at $500,000.

ON GAS LINES

—ROBINSON Orifice Fittings insure these many advantages

[*Note the simplicity of this Robinson gas line installation. No by-pass is required.*]



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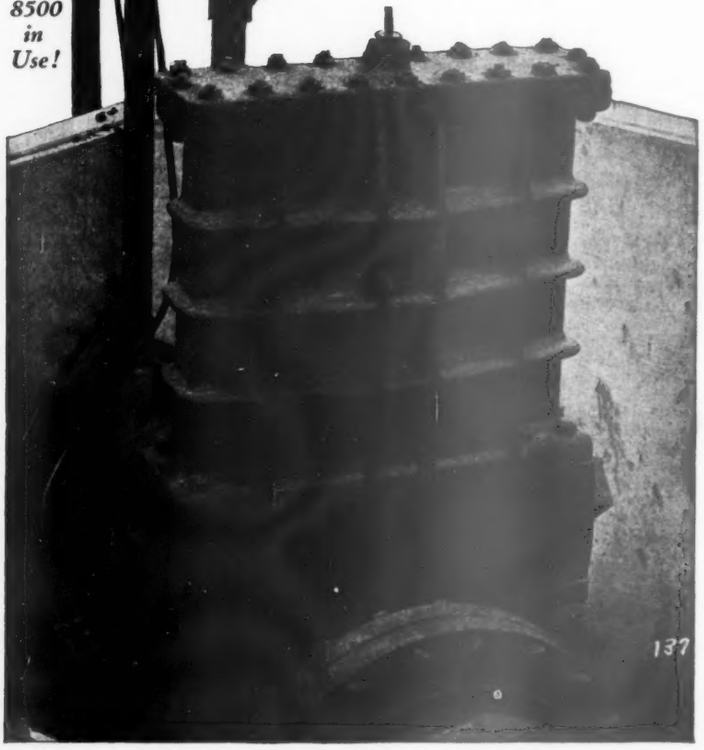

ROBINSON ORIFICE FITTING

RECOMMEND SAFETY RULES IN LOADING

(Continued from Page 155)

loading rack only by the written authority of the loading rack foreman.

49. Smoking is prohibited at all loading racks, and it is advisable for car loaders to refrain from carrying matches.

50. Each car loader must be familiar with the fire fighting equipment and must know what to do in case of fire.

51. Car loaders should be familiar with the combustion and aspyhxiation hazards of gasoline fumes and should know how to give artificial respiration.

52. Report all injuries no matter how small and get first aid.

53. When in doubt consult the loading rack foreman.

PANHANDLE FIELDS

(Continued from Page 47)

bbls. after having been shot with 60 quarts at 1,627-43 feet.

Palo Pinto County

Conway Brothers and others' No. 1 Brothers was shot with 100 quarts at 3,470-90 feet and made 225,000 feet of gas. This well was drilled to a total depth of 3,955 feet.

Stephens County

Breeding and others' No. 1 Russell was temporarily abandoned. Hanlon Gas Co.'s No. 2 Todd was dry and abandoned at 2,315 feet. E. Lawton's No. 1 McCleskey was dry and abandoned at 3,760 feet. Texas Fidelity Oil Corp.'s No. 1 Adams was dry and abandoned at 2,500 feet. Tidal Oil Co.'s No. 1 Jones was dry and abandoned at 3,952 feet.

Shackelford County

Earl & Dull's No. 2 Matthews location was temporarily abandoned. Roeser & Pendleton's No. 19-A-61 Cook made 50 bbls. at 1,327-44 feet. Their No. 21-A-61 Cook made 75 bbls. at 1,320-31 feet. Their No. 23-A-61 Cook made 75 bbls. at 1,271-89 feet. Their No. 9-A-62 Cook made 10 bbls. at 1,355-67 feet. Their No. 44-C-60 Cook made 30 bbls. at 1,138-54 feet.

WICHITA COMPLETIONS

Wichita County

Empire Holding Corp.'s No. 7 Anall was junked at 2,290 feet. Hammon & Garrett's No. 15 McCarty-B made 20 bbls. at 1,338-80 feet. Holbrook & Wood's No. 24 Kemp & Kempner made 30 bbls. at 1,196-1,203 feet. Humble Oil & Refining Co.'s No. 1 Hines-B was dry and abandoned at 2,015 feet. W. T. Knight's No. 1 Mitchell was dry and abandoned at 1,905 feet. W. B. Omohundro's No. 18 J. R. Pace made 20 bbls. at 1,020-34 feet. Panhandle and Hines' No. 3 Burnett made 49 bbls. at 1,379-94 feet. Rio Bravo Oil Co.'s No. 14 fee-E was dry and abandoned at 1,593 feet. E. J. Stump & Co.'s No. 1 Hamilton was dry and abandoned at 1,826 feet. United Production Co.'s No. 4 Hodges was dry and abandoned at 497 feet.

Wilbarger County

Fain McGaha Oil Corp.'s No. 17 Waggoner-S was drilled to a total depth of 2,444 feet, plugged back to 2,442 feet and made 42 bbls. of oil and 21 bbls. of water at 2,316-43 feet. Phillips Petroleum Corp.'s No. 1 Waggoner-BBB made 184 bbls. at 1,864-91 feet. Robertson and others' No. 1 Yarborough was dry and abandoned at 2,506 feet. Roxana Petroleum Corp.'s No. 1 Milner was dry and abandoned at 2,020 feet.

Young County

Halbrook & Woods' No. 2 Dairs made 30 bbls. at 892-904 feet. Kennedy and others' No. 5 Johnson made 30 bbls. at 504-09 feet. Kleiner and others' No. 7 Davis made 15 bbls. at 539-64 feet. Petroleum Production Co.'s No. 7 Hennig made 25 bbls. at 1,087-89 feet. Its No. 3 Parrish-A made 45 bbls. at 1,093-1,102 feet. Republic Production Co.'s No. 2 Haygood made 14 bbls. at 707-13 feet. Wolfe's No. 7 Love was dry and abandoned at 869 feet. Whatley and others' No. 1 Thedford was dry and abandoned at 4,385 feet.

GASOLINE PRICES SEEK MORE UNIFORM BASIS

(Continued from Page 155)

after week passed and prices remained at their record level for the year and a constant revision of average estimated prices for the balance of the year had to be made. In brief, prices have been maintained higher than had been expected. Possible remembrance of the low prices at this time last year lead to the prediction prices would have to fall again this year.

There are several factors operating at present to keep prices up which were not present a year ago and the experiences of last year should not be taken as an index. Starting in October a year ago, prices declined steadily until April of this year. This was probably the result of the mounting production from the new Seminole fields and the ultimate limit of production appeared to be more indefinite as the year neared an end. While the production from this field continues to increase now, the limit seems in reach but more than this, a market has been found for all of the production and with production declining in the balance of the Mid-Continent about as fast as the Seminole Field is increased, the possibility of a flooded market seems very remote. Manufacturers have been conservative also in expanding their manufacturing facilities and are in a favorable position to control their operations. Also, a very large volume is now consistently moving to the Gulf on contracts with the amount increased after the first of next year. What trend the future of prices will take, of course, remains problematical and since natural gasoline prices are become more and more closely related with those in other branches of the industry any change in the other branches is watched with interest.

OIL SECURITIES REACH NEW HIGH MARKS

(Continued from Page 161)

quarter ended September 30, 1928, net loss of $930 after expenses and amortization, comparing with net loss of $22,756 in preceding quarter and let loss of $3,318 in third quarter in 1927. Net loss for nine months ended September 30, 1928, totaled $33,991 after expenses and amortization, against net loss of $14,158 in first nine months of previous year.

Imperial Oil

Imperial Oil, Ltd., declared the usual extra dividend of 12½ cents and the regular quarterly dividend of 25 cents, both payable December 1 to stock of record November 15.

OIL BONDS ON THE NEW YORK CURB
Quotations Compiled by Francis, Bro. & Co., Members New York Stock Exchange Kennedy Bldg., Tulsa, Okla.

Amount outstanding	Company—	Date	Pct.	Int.	For week ended Nov. 9— Sales	High	Low	Close
11,603,000	American Nat. Gas Co.	Oct. 1942	6½	A&O	No sales.			
3,000,000	Beacon Oil Co.	Nov. 1936	6	M&N	4,000	114	111	114
18,900,000	Cities Service deb.	Jan. 1966	6	M&N	No sales.			
15,000,000	Cities Serv. refunding deb.	Jan. 1966	5	M&S	8,000	94	93¼	94
24,843,700	Cities Service Gas Co.	May 1942	5½	M&N	3,600	93⅝	93½	93½
12,000,000	Cities Service Gas P. L. Co.	Jan. 1943	6	J&J	4,100	99½	99⅛	99⅛
12,000,000	Continental Oil Co.	Nov. 1937	5¼	M&N	1,000	96¾	96	96
3,000,000	Dixie Gulf Gas Co. A	Sept. 1937	6½	M&S	800	91½	90	91
18,000,000	Empire Oil & Ref. Co.	Apr. 1942	5½	A&O	4,000	93⅝	93	93
3,877,100	Galena Signal Oil Co.	Apr. 1930	7	A&O	No sales.			
30,904,000	Gulf Oil of Pa.	Dec. 1937	5	J&D	1,800	100⅝	100¼	100⅜
12,000,000	Gulf Oil of Pa. debs.	Feb. 1947	5	F&A	7,800	100¾	100¼	100⅜
4,000,000	Houston Gulf Gas	Apr. 1943	6	A&O	3,600	96	95½	95⅝
4,000,000	Houston Gulf Gas	Apr. 1943	6½	A&O	3,400	94¾	94	94⅛
6,339,000	Independent Oil & Gas	Mar. 1939	6	M&S	41,000	117	109	114
15,000,000	Lone Star Gas Co.	May 1942	5	M&N	No sales.			
11,650,000	Richfield Oil Co.	Sept. 1941	6	M&S	100	126	125	125
1,427,000	Richfield Oil Co.	Jan. 1931	5½	J&L	5,000	102¼	101¼	102⅛
9,732,000	Sun Oil Co.	1939	5⅛	M&S	3,000	101¾	101	101
4,000,000	Transcontinental Oil Co.	Apr. 1930	7	A&O	No sales.			
2,500,000	Warner-Quinlan Oil Co.	1942	6	A&O	10,500	115⅞	113¼	114⅛

Don't let Winter steal your Cash!

Hard starting in winter, more than any other cause, has kept motorists from satisfactory year round use of their cars. ☞ No longer need this condition exist, for Phillips '66' is a gasoline of **Controlled Volatility*—controlled for the climate, the season and the geographical location.** It starts readily on the coldest days; has the qualities that cause quick acceleration on the frostiest mornings; and the "body" necessary to assure mileage.

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Of Interest to Sales Departments

Gas Oil and Fuel Oil Exports Gain in 1927; Home Deliveries Less

Deliveries of gas oil and fuel oil, during 1927, including exports and shipments to noncontiguous territories, reached a total of 381,151,000 bbls., compared with 372,381,000 bbls. in 1926, according to E. B. Swanson, economic analyst, United States Bureau of Mines, which has just completed a national survey of fuel oil distribution, in co-operation with the American Petroleum Institute. This increase of 8,770,000 bbls. in total deliveries resulted from increased shipments to foreign countries, as the quantities delivered within the United States showed a slight decrease from 334,030,000 bbls. in 1926 to 333,760,000 bbls. in 1927.

Shipments of gas oil and fuel oil to foreign countries increased from 34,516,390 bbls. in 1926 to 42,963,180 bbls. in 1927, or 24.5 per cent, while shipments to Alaska, Hawaii and Porto Rico advanced from 4,104,505 bbls. in 1926 to 4,427,682 bbls. in 1927, an increase of 7.9 per cent. Increased shipments to North Central Europe, Mexico, Cuba, South America, China and Japan offset the decrease in shipments to the United Kingdom, Spain, France and Italy, and accounted for the gain in exports.

The domestic demand for gas oil and fuel oil was stimulated by the increased requirements for bunker fuel by oil-burning steamers and the increasing installations of domestic and commercial oil-burning heating plants.

Railroad purchases of fuel oil were less in 1927, as fuel oil stocks which had been increased during 1926 were drawn upon in 1927. The actual consumption of oil by railroads for locomotive and shop fuel was slightly larger in 1927.

Deliveries of gas and fuel oil to gas and electric power plants decreased from 33,652,000 bbls. in 1926 to 29,775,000 bbls. in 1927. Of this decrease of 3,877,000 bbls., 2,617,000 bbls. is accounted for by the decreased demand for oil as a fuel in the generation of electric power, and 1,260,000 bbls. by the decrease in consumption of oil in the manufacture of artificial gas.

The consumption of oil as a fuel by petroleum refineries and producers dropped from 48,701,000 bbls. in 1926 to 43,453,000 bbls. in 1927. Other major decreases include the lessened requirements for general manufacturing and various smelters and steel mills. If the decrease of approximately 5,250,000 bbls. in the fuel oil requirements of the petroleum industry itself should be eliminated from this general comparison, deliveries to other industries which form the domestic fuel oil market would show an increase in 1927 of approximately the same amount as the decrease in fuel oil requirements of the petroleum industry. This indicates that, although there was a slight decrease in domestic deliveries of fuel oil in 1927 compared with the preceding year, actual sales of fuel oil increased.

The Pacific Coast States continued to lead in the regional consumption of fuel oil, followed by the South Central and Middle Atlantic States. The North Central region, including mainly the states bordering the Great Lakes, showed the largest proportional increase in consumption, while the South Central and South Atlantic States showed decreases in requirements. A greater utilization of natural gas in Texas and Louisiana was mainly responsible for the decreased deliveries of fuel oil in the South Central States, while the decreased demand in the South Atlantic States was centered largely in Florida and was caused by a decrease in locomotive fuel consumption by the single oil-burning railroad operating in that area and by the completion of certain dredging operations which had consumed relatively large quantities of fuel oil.

CONSUMPTION BY BUS

The gradually increasing consumption of gasoline per motor vehicle might be accounted for in part by the fact bus transportation has come into general use and the prospects of its future development seem unlimited. A statement by the American Automobile Association, bus division, based upon a study of motor bus operating costs on the lines of 66 companies carrying more than 400,000,000 passengers at an average fare of 10.1 cents per passenger, shows that the miles of route covered by the common carrier bus exceeds by 5 per cent the route mileage of railroads and by 463 per cent that of electric railways.

ZEPPELIN SOUVENIR OIL

NEW YORK, Nov. 10.—The Tide Water Oil Co., whose "Veedol" was used to lubricate the engines of the Graf Zeppelin in its transatlantic voyage completed this week, is distributing to radio fans small bottles of the oil drained from the engine crankcases as souvenirs of the flight.

PANAMA CANAL FUEL OIL BIDS

The general purchasing officer of the Panama Canal announces that bids will be received for supplying fuel oil for 1929. It is estimated that 325,000 bbls. of Bunker "C" fuel oil will be required.

GERMAN CONSUMPTION OF MOTOR FUEL GAINS

Consumption of motor fuel in Germany will approximate 1,200,000 metric tons during 1928, an increase of 15 per cent according to the United States Department of Commerce.

Although the bulk of the gasoline and oil consumed in Germany must be imported, considerable progress is being made in synthetic development, including the German dye trust's operation in the hydrogenation of lignite and the ammonia synthesis plant at Leunawerk. The petroleum synthesis, sponsored by the Coal Research Institute, the statement said, has not gone beyond the laboratory stage.

Though official statistics are lacking, it may be reckoned with fairly close accuracy that Germany will consume in 1928 over 800,000 metric tons of gasoline, and almost 1,200,000 tons, if benzol consumption figures are included; gasoline and benzol in mixture are in common use in Germany for fuel for internal combustion engines, and occasionally (as in the Koehl-Huenefeld transatlantic flight), benzol is used alone.

Furthermore, this country will consume well over 500,000 tons of lubricants in 1928, 150,000 tons of kerosene, and at least 280,000 tons of gas oil. Gasoline consumption will have increased around 15 per cent over the preceding year, and will be over three times in corresponding 1913 level; the reason therefor is the steady growth of the use of automotive vehicles.

Large Use of Lubricants

Over 500,000 tons of lubricants will also be used. Of mineral oil imports from January through June, aggregating 845,862 tons, the United States supplied 52 per cent.

Again the steady increase in consumption of lubricants reflects the progress of industrial activity and is a barometer in a sense, of Germany's certain economic recovery from the war.

The estimate of gasoline consumption arises from the simple circumstance that practically all local supplies have to be imported. From January to June, inclusive, of 1928, 377,000 tons of gasoline, that is, heavy crude, and refined were entered here from overseas, chiefly the United States.

Local production is negligible; though Hanover oil wells are yielding around 100,000 tons of crude oil annually, this is chiefly fit only for lubricants. Some 1,500 tons of gasoline only can be recovered annually from crude oil from wells at Oberg, south of Peine, in Hanover province.

Furthermore, the German dye trust's operation of lignite (brown coal) hydrogenation for a yield of synthetic gasoline is not far enough developed to be seriously reckoned with. The Leunawerk, Germany's giant ammonia synthesis plant at Merzeburg, in central Germany, operating the synthetic gasoline process, is turning out only 100 tons of gasoline daily, or at a rate of 35,000 tons annually.

It proposes to increase to 300 tons daily next year, or the equivalent of 100,000 tons annually. Its eventual goal is 250,000 tons of synthetic gasoline annually, a figure that is accepted as the annual normal increase in local consumption.

For this reason any concern for American exporters, who dominate this market, that synthetic gasoline will emancipate Germany from imports from abroad should be dismissed. The technical problems confronting synthetic gasoline production are not by any means solved and permanent profitable operation against competition with thhe natural product is by no means certain.

Other negligible resources of gasoline, comparatively speaking, of course, are the coal and lignite tar distillation enterprises. German coal tar production amounts to around 1,200,000 tons annually, and lignite tar, some 170,000 tons; further processing yields but relatively small quantities of oil, though local production of benzol, chiefly in the coke plants, is no inconsiderable item; Germany's total benzol production is at least 250,000 tons annually, and, this being insufficient for the country's auto requirements, it may be expected that benzol imports in 1928 will reach at least 140,000 tons, against 131,000 tons in 1927, 64,000 tons in 1926, and 44,000 tons in 1925.

As the United States supplies over 50 per cent of Germany's imports of mineral oils, our country also sells Germany around 25 per cent of its current benzol imports.

TANK WAGON PRICES IN 50 CITIES WERE SLIGHTLY LOWER NOVEMBER 1

Tank wagon gasoline prices failed to continue their upward trend during October as evidenced by the slightly lower average net gasoline tank wagon price in The Oil and Gas Journal's 50 cities for that month. On November 1 the average dropped to 16.30 cents, while on the first of the previous month it was 16.34. Although this represents a decrease for the month, the November 1 average for this year is higher than a year ago by nearly 2 cents. Compared with that for two years ago, however, this year's figure is still nearly 3 cents low.

With the refinery prices showing a slight decline in all refining sections and the consumption of gasoline declining as colder weather approaches, it is unlikely retail prices will show any material advance in the immediate future.

Through the elimination of free equipment, at many points, lower discounts and the revision of the quantity discount agreement in the Standard Oil Co. of Indiana territory, a decided improvement in the stability of the tank wagon market has been seen. While the margin between the refinery price and the net tank wagon price has been gradually narrowed over the last year, there has been fewer "price wars" and the strengthening has been well supported.

There have been no general price changes in any locality, the few price changes made being widely scattered over the United States. The average tax remained the same, the figure of 2.99 cents remaining the same.

(Continued on Page 181)

AVERAGE TANK WAGON PRICE IN 50 CITIES

(Exclusive of tax)

September 1, 1926	19.587
October 1	19.167
November 1	18.187
December 1	17.607
January 1, 1927	17.567
February 1	17.469
March 1	17.007
April 1	16.160
May 1	15.320
June 1	14.720
July 1	14.86
August 1	14.89
September 1	14.62
October 1	14.39
November 1	14.32
December 1	14.21
January 1, 1928	14.29
February 1	14.33
March 1	14.71
April 1	14.81
May 1	15.02
June 1	15.22
July 1	15.29
August 1	15.74
September 1	16.04
October 1	16.34
November 1	16.30

FLINTKOTE-DUTCH SHELL

NEW YORK, Nov. 10.—Stockholders of the Flintkote Co., meeting in Boston, have ratified the contract between the company and the Anglo-Saxon Petroleum Co., Ltd., of the Royal Dutch-Shell group. Purchase of the Beckman-Dawson Roofing Co. of Chicago was also approved. New directors elected were: J. C. Van Eck, president of the Shell Union Oil Corp.; James H. Brookmire, treasurer of the Shell Union Oil Corp.; Richard Airey, president of the Asiatic Petroleum Corp.; Frederick Allen of Lee, Higginson & Co., and Avery D. Andrews, director of the Shell Union Oil Corp.

NEBRASKA JOBBERS TO MEET

Nebraska state jobbers will hold their eighth annual meeting on December 4, 5 and 6 at Hastings in the Municipal auditorium. A complete display of equipment will be shown. The program includes papers and open discussion.

Tanks By Graver

IF YOU COULD read the equipment registers of every oil company producer—refiner or marketer the item

TANKS BY GRAVER

would reappear again and again.

Not that every oil company has Graver tanks, but most of them do. And those who do have them, come back to Graver again and again for their additional storage requirements. Why?

They have seen the performance of Graver tanks, they have confidence in Graver products and confidence in the ability of the Graver brothers to produce a good product.

One of the earliest policies laid down by Graver is "The customer must be satisfied with his purchase."

Do you want tanks with this reputation and backing?

GRAVER Corporation Founded 1857

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO America Fore Bldg. | FORT WORTH Petroleum Bldg. | LOS ANGELES Pacific Nat'l Bank Bldg.

Progress in S.A.E. Viscosity Numbers

Adopted by More and More Automobile and Lubricating Oils Manufacturers. Not a Specification

By E. W. Upham
Chief Metallurgist, Chrysler Corp.

The story of the development of the S.A.E. crankcase lubricating oil viscosity numbers is one of co-operation between engineers and engineering societies of two of our largest industries, namely the automobile industry and the oil industry. It is a unique development in that respect, that is, the technical men of the two industries working together. The problem to be solved was a common one, and while the solution was needed to meet a situation in the automotive industry, the answer could not be obtained without a standardization being effected of oils as sold to the ultimate consumer.

Standardization of materials and processes is being carried on in all industries. In this particular case, the standardization of crankcase lubricants, the purpose was not one of economy by simplification, but to replace an ineffectual system already in use.

The problem of the automobile manufacturers was simply one of proper service to the automobile owner. The automobile manufacturers, through their service departments, lend all possible assistance to the car owner, to insure satisfactory operation. That is why they have instruction books. As regards lubrication, there was always a question as to how to best make recommendations to car owners. The engineers realized the importance of correct lubrication. They realized that a percentage of failures and faulty operation of cars was due to incorrect lubrication. They did not and do not like to recommend lubricants by trade name. However, no other means were available if they wished to adequately cover a lubrication recommendation. It is not practical for a car owner to buy oil on a specification. There is not one owner in a thousand sufficiently well versed on the subject of lubricants to correctly interpret flash, fire and viscosity and other physical values constituting a lubricant specification. Very few oil men selling direct to the consumer know their product from this standpoint. I mean now, the filling station operator himself.

The lubrication charts of the reputable oil refiners are usually dependable. Their technical men co-operate with the automobile engineering and service departments in obtaining information on which these charts are based. There are too many car owners paying no attention to trade names. They drive up to a filling station and ask for a "quart of oil," apparently not caring about the quality, as has been said before.

Manufacturer's Position

Automobile manufacturers build cars that will operate successfully with the average lubricants sold, but they realize that greater satisfaction will result to the car owner with the use of lubricants of the correct body, and that have been well refined. That was the problem which confronted the automobile manufacturers. How to recommend correct lubrication without the use of trade names. The oil industry possessed no standardized system of grading of lubricants. The grading of lubricating oils into light, medium, heavy, extra heavy, etc., was loose and ineffectual. Some company's medium would be another company's heavy. Some companies had adopted the use of numbers, others letters as an index to their own particular grading. The result was confusing.

Some of the automobile companies tried out "trade name" recommendations by either listing one trade name and grade, and recommending the use of that particular oil or its equivalent, or having approved lists and giving several trade names and grades. These methods cannot help but be unfair, and, furthermore, entail endless labor on the part of the automobile companies' testing laboratories. The automobile companies believe in the use of trade name lubricants, but they do not believe in recommending lubricants by trade name.

Start of Standardization

The first attempts at standardization resulted in the adoption by the Society of Automotive Engineers of the crankcase lubricating oil specification in 1923. These were what might be termed "purchasing agent" specifications and included limits on flash, fire, viscosity, Conradson carbon, etc. They were never widely adopted by either the oil companies or the automobile companies. A standardization based on viscosity alone was then proposed at a joint meeting of the lubricants division of the S.A.E. standards committee, of the D-2 committee of the A.S.T.M., the former composed of automobile engineers and lubricating engineers of the oil companies, the latter almost entirely of the technical men of the oil industry. This was at Baltimore, in the fall of 1925. It was adopted by both committees and recommended to the S.A.E. standards division in July, 1926, at which time it was adopted by the society.

The reasons for grading based on viscosity are that "body or viscosity is one of the most natural, and likewise the oldest methods of grading oils. The grading into light, medium and heavy is firmly established. A proposal was made to make these terms mean something, that is, tie in this grading with Saybolt values. The names are so tied up with the gradings already established by the individual oil companies that it was realized it would be too much to ask them to change their oils to suit the new established limits and this plan was dropped.

Viscosity Numbers

The S.A.E. viscosity numbers do not call for any change in the present system of grading or do not interfere with trade names. In fact, they supplement the trade names. The limits were chosen, so as to fit in with present average gradings. The numbers and limits adopted are as follows:

Crankcase Lubricating Oil Viscosity Numbers

Viscosity No.	Viscosity range*—Saybolt Universal, sec. At 130° Fahr.	At 210° Fahr.
10	90–115	.....
20	120–150	.....
30	185–220	.....
40	255–	–70
50	.....	75–95
60	.....	105–120

*Oils with viscosities falling between the ranges specified shall be classified in the next lower grades.

From the report of the miscellaneous division, adopted by the society June, 1911. Revised by the lubricants division, March, 1923, and July, 1926.

I wish to call your attention to the supplementary note to the table. "Oils with viscosities falling between the ranges specified shall be classified in the next lower grades." This makes our numbering system include practically all crankcase lubricants marketed.

Now in explanation of the table you will note the viscosity of the lighter-bodied oils are taken at 130 degrees Fahrenheit, the heavier at 210 degrees Fahrenheit. Here are some of the reasons why the viscosity numbers for the lighter oils are taken at 130 degrees Fahrenheit. I am quoting this direct from a paper prepared by H. C. Mougey of the General Motors Corp. in March, 1926:

"1. One hundred thirty degrees Fahrenheit is one of the three temperatures recognized as standard by the A.S.T.M. These temperatures are 100, 130 and 210 degrees Fahrenheit.

"2. One hundred thirty degrees Fahrenheit is nearer an average crankcase oil temperature in automobiles than either 100 or 210 degrees Fahrenheit.

"3. One hundred thirty degrees Fahrenheit is a good compromise between the temperatures of 210 degrees Fahrenheit desired by the eastern oil men and of 100 degrees Fahrenheit by the western oil men, since if an eastern oil and a western oil have the same viscosity at 130 degrees Fahrenheit, the eastern oil will have a lower viscosity below 130 degrees Fahrenheit and higher viscosity above 130 degrees Fahrenheit with the western oil the reverse.

"4. One hundred thirty degrees Fahrenheit is the standard temperature in use by the United States Navy for a number of years.

"5. One hundred thirty degrees Fahrenheit permits a much more accurate viscosity determination for the low-viscosity oils than 210 degrees Fahrenheit since the Saybolt instrument is not reliable when used in determining viscosities as low as those of the low viscosity automobile oils at 210 degrees Fahrenheit.

High Viscosity Oils

"For higher viscosity oils ordinarily used in trucks or tractors 210 degrees Fahrenheit was chosen as the standard temperature. Some of the reasons for this choice are:

"1. Two hundred ten degrees Fahrenheit is one of the A.S.T.M. standard temperatures.

"2. Two hundred ten degrees Fahrenheit is nearer the average crankcase oil temperature in trucks and tractors than 100 degrees Fahrenheit.

"3. Two hundred ten degrees Fahrenheit is now recognized as the standard temperature for high-viscosity oils.

"4. Two hundred ten degrees Fahrenheit permits accurate viscosity determinations on the higher viscosity oils."

Not a Specification

One point we have emphasized is that the system of S.A.E. crankcase lubricating oil viscosity numbers is not a specification or a series of specifications, but

(Continued on Page 182)

PURE OIL PERFECTS CONTINUOUS METHOD OF SWEETENING GASOLINE

By G. T. Yost*
Pure Oil Co.

The purification of petroleum products by chemical solutions is probably one of the most important operations in the refinery. The operation, generally termed "treating" may be defined as the art of removing objectionable compounds. In the previous article we discussed the acid treatment and neutralizing steps on cracked gasolines. In a great many cases this is all that is necessary to make a sweet smelling, color-stable, water-white product. In some instances, however, gasolines given this treatment and subsequently rerun, have an odor that is considered highly objectionable by the trade. This condition also occurs at times in gasolines that are products directly from crude, and not that made by cracking processes only.

Generally speaking, this objectionable odor is due to the gasoline containing various sulphur compounds; notably hydrogen-sulphide. As far as the performance of the gasoline is concerned in an automobile, these sulphur compounds would have little, if any, deleterious effect. There are cases, however, where the sulphur compounds exceed 1 per cent total sulphur, and it is a much mooted question as to whether or not sulphur content in excess of this amount has appreciable corrosive action in an automobile engine.

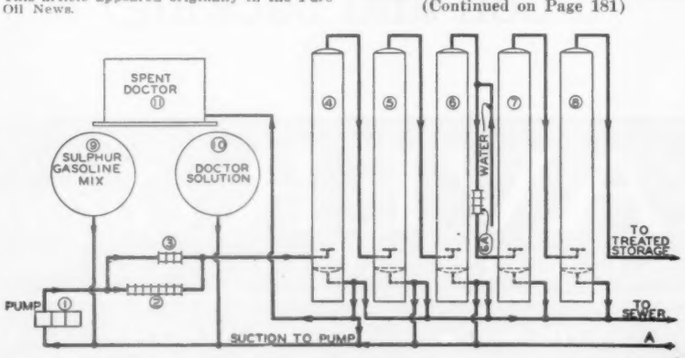
The greater portion of the total sulphur content is eliminated when gasoline not subjected to acid treatment may, on being subjected to treatment with other chemicals, have the sulphur content materially reduced to the point where it will pass the sulphur specification satisfactorily. These "other chemicals" are usually what, in refinery parlance, is known as doctor solution, or technically speaking, sodium plumbite. This solution is made by dissolving lead oxide (litharge) in sodium hydroxide (caustic) solution. The strength of the sodium hydroxide solution to be used can generally be determined by laboratory experimentation. In any event, the sodium hydroxide should have sufficient lead oxide added to it to form a saturated solution.

Saturated Solution

By a saturated solution, we mean that the sodium hydroxide (or caustic solution) has taken up as much lead oxide as it possibly can, or in other words, no more lead oxide can be dissolved in it. This same solution (doctor solution or sodium plumbite) is that which is generally used for laboratory tests to determine whether or not a gasoline is sour or sweet. On the addition of a small quantity of doctor solution to a small

(Continued on Page 181)

*Mr. Yost is resident chemist at the Marcus Hook, Tex., refinery of the Pure Oil Co. This article appeared originally in the Pure Oil News.



Flow diagram of continuous sweetening equipment at refineries of Pure Oil Co.

FRANKLIN PIERCE, fourteenth president of the United States, elected in 1852—when Jarecki was established.

Another Election...Another Milestone

Once more the nation has chosen its leader. Once more constituents of the great parties, regardless of their leanings before election, unite wholeheartedly in wishing wisdom, prosperity and success for the Victor.

On an occasion like this it is but natural that Jarecki look back upon the nineteen presidential elections that have come and gone since this company was established. In 1852, when Henry Jarecki "opened shop," Franklin Pierce, Democrat, received 1,601,474 popular votes as against the 1,380,678 cast for Scott, a Whig. The Republican party had not yet been born. Lincoln's election was still twelve years off.

As each election saw the United States richer in diplomatic experience, more strongly entrenched as a great nation and more firmly established as a World Power, so did the passage of each four years see Jarecki richer in manufacturing experience, more strongly entrenched in the public confidence and more firmly established as a world leader in its particular field.

This record Jarecki regards as a priceless possession, to be jealously guarded in every transaction of which it is a part. You receive the benefit in well designed, honestly made and triply inspected products. Your nearest Jarecki store stands ready to serve you.

Jarecki

MANUFACTURING COMPANY

General Office, St. Louis, Mo. Home Office and Factory—Erie, Pa., U. S. A.

Branch stores at all important places in the Oil Country.

District Offices { Pittsburgh, Pa.; El Dorado, Kan.; Tulsa, Okla.; Newark, Ohio; Eastland and Dallas, Texas; Lawrenceville, Ill.

economy

An important feature of Lummus Low Temperature Refining Plants, Built for flexibility and ease of control, operating costs are minimized overhead expense cut and, too, the initial cost is less.

Maximum yields, definate control of initial and end points of distillates and protection of high viscosity lube oils.

THE WALTER E. LUMMUS CO.
148 State St. Boston, Mass.
30 Church St. New York City

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Gray County

Lefors Petroleum Co.'s No. 4 J. M. Shaw, 1,650 feet south and 375 feet east of the NW cor. of the T. Leach Survey. Perkins & Cullum's No. 1 G. H. Saunders-B, 330 feet north and east of the SW cor. of the SW of the SW of Section 1, B.S.&F. Plains Drilling Co.'s No. 2 G. H. Saunders, 990 feet north and 330 feet west of the SE cor. of the SE of Section 4, Block 1, A.C.H.&B. Skelly Oil Co.'s No. 1 G. H. Saunders, 990 feet north and 330 feet west of the SE cor. of the SW of Section 4, Block 1, A.C.H.&B. Same company's No. 2 G. H. Saunders, 231 feet north and 1,112 feet east of the SW cor. of Section 4, Block 1, A.C.H.&B. Same company's No. 3 G. H. Saunders, 330 feet south and 990 feet east of the NW cor. of the SW of Section 4, Block 1, A.C.H.&B. Same company's No. 4 G. H. Saunders, 330 feet south and 990 feet west of the NE cor. of the SW of Section 4, Block 1, A.C.H.&B.

Moore County

Fritch Oil & Gas Co.'s No. 1 Lee Bivins, 516 feet south and 917 feet east of the SW cor. of Section 93, Block 46, H.&T.C., and located in the George Mahan Survey No. 4.

NORTH CENTRAL AND WEST TEXAS

Archer County

Guy Braggett's No. 1 R. C. Kinder, 150 feet north and 250 feet west of the SE cor. of the north 30 acres of the east 50 acres of the south 100 acres of Section 63, Block 5, Clark & Plumb Subdivision. F. Hutcheson's No. 4 W. T. Hutcheson, 425 feet south and 150 feet east of the NW cor. of Lot 1, Powers Subdivision, Section 123, A.T.N.C.L.. J. Turner and others' No. 1 J. D. Lyles, 450 feet south and 150 feet west of the NE cor. of the NW of the NE of Section 7, Hooper & Wade, A-234. J. Turner and others' No. 2 J. D. Lyles, 450 feet south and west of the NE cor. of the NW of the NE of Section 7, Hooper & Wade, A-234. P. F. Gwynn's No. 1 L. Echols, 750 feet north and 450 feet west of the SE cor. of the north 70 acres of the L. Echols 124.5-acre tract out of Section 2,418, T.E.&L. H. Hines and others' No. 1 Morris Phillips, 150 feet north and east of the SW cor. of the north 25 acres of the west 50 acres of the M. Phillips 220-acre tract and located in the B.B.B.&C. Survey No. 6, A-825. Humble Oil & Refining Co. & Burns' No. 1 J. T. Longley, 150 feet north and east of the SW cor. of the J. Levins Survey, A-260. Panhandle Refining Co. and others' No. 7 H. O. Prideaux-C, 1,050 feet south and 1,350 feet east of the NW cor. of their 105-acre "C" lease out of the A. Rohus Survey, A-1,126. Panhandle Refining Co. and others' No. 8 H. O. Prideaux-C, 1,350 feet south and east of the NW cor. of their 105-acre lease "C" out of the A. Rohus Survey, A-1,126. Underwood Drilling Co. and others' No. 2 R. D. Andrews, 600 feet north and 900 feet west of the SE cor. of the east 100 acres of the north 160 acres of Section 1,805, T.E.&L. Lee Wilson's No. 1 J. A. Kunkel, 150 feet north and 1,600 feet east of the SW cor. of the south 79 acres of the J. A. Kunkel 179-acre tract out of the J. Standerford Survey, A-394.

Brown County

W. A. Butler and others' No. 1 Shields & Maddox, 150 feet north and west of the SE cor. of the SW of Section 38, H.T.&B. Gilman & McMurray's No. 6 Roy Hickman, 450 feet north and 350 feet east of the SW cor. of their 180.5-acre lease out of the Thomas Benson Survey No. 783. Humble Oil & Refining Co.'s No. 6 J. H. Allen-A, 200 feet south and 1,316 feet west of the NE cor. of Lot 7, Juan Delgado Survey No. 785. Humble Oil & Refining Co.'s No. 26 Roy Hickman, 1,080 feet south and 920 feet west of the NE cor. of their 160-acre lease out of the Thomas Benson Survey No. 783. W. L. Murrell's No. 1 R. L. Lewis, 150 feet south and east of the NW cor. of the northeast 40 acres (square) of the R. L. Lewis 160-acre tract out of the Elisha Mather Survey, A-660. Young Brothers, Alexander & Woodley Petroleum Co.'s No. 6 J. S. Armstrong, 1,350 feet north and 150 feet east of the SW cor. of the J. S. Armstrong 231.5-acre tract out of the P. Curlong Survey No. 151.

Callahan County

Cranfill & Reynolds' No. 2 R. F. Scott, 750 feet south and 1,750 feet east of the NW cor. of Section 315, S.P.R.R. Moutray Oil Co.'s No. 1 P. G. Hatchett, 150 feet south and west of the NE cor. of the NW of the NW of Section 29, Deaf & Dumb Asylum Land. Reiter-Foster Oil Corp.'s No. 2 P. G. Hatchett, 150 feet north and east of the SW cor. of the SE of the SW of Section 24, Deaf & Dumb Asylum Land. The Texas Company's No. 1 P. G. Hatchett, 150 feet north and 150 feet west of the SE cor. of the NE of the NW of Section 29, Deaf & Dumb Asylum Land. The Texas Company's No. 2 P. G. Hatchett, 150 feet north and west of the SE cor. of the NE of the SE of Section 23, Deaf & Dumb Asylum Land. The Texas Company's No. 3 P. G. Hatchett, 150 feet south and west of the NE cor. of the SW of the NE of Section 23, Deaf & Dumb Asylum Land. The Texas Company's No. 4 P. G. Hatchett, 150 feet south and 125 feet east of the NW cor. of the NE of the NW of Section 29, Deaf & Dumb Asylum Land.

Cooke County

Sunflower Oil Co.'s No. 1 S. H. Dennis, 720 feet north and 850 feet west of the SE cor. of the S. H. Dennis 135-acre tract out of the S. Hernandez Survey, A-437.

Coleman County

A. R. Forster's No. 4 C. L. Davenport, 1,170 feet north and 450 feet west of the SE cor. of the C. L. Davenport 404-acre tract out of the W. T. Dunlavy Survey No. 259. Morrison & St. John's No. 1 L. V. Eddington, 2,290 feet north and 1,961 feet east of the SW cor. of the Victoria County School Land No. 187. Derby Oil Co.'s No. 9 G. W. and L. P. Jennings, 534 feet south and 550 feet west of the NE cor. of their 50-acre lease out of the A. S. Lipscomb Survey No. 94. Humphreys Brothers and others' No. 3 J. P. Matthews, 2,940 feet north and 150 feet east of the SW cor. of the C. Raquet Survey No. 43. Ross Drilling Co.'s No. 1 T. M. Hays, 150 feet south and 4,090 feet west of the NE cor. of the Bonds & Sanders Survey No. 92.

Culberson County

Deep Rock Oil Co.'s No. 2 J. P. Seay, 200 feet north and 250 feet east of the SW cor. of the SE of Section 20, Block 59, Township 7, T.&P.R.R.

Crane County

Government Potash Test No. 11 (Texas No. 8) W. N. Waddell, 330 feet north and west of the SE cor. of Section 3, Block B-5, Public School Land.

Crockett County

W. A. Moncrief and others' No. 1 J. S. Todd, 660 feet south and west of the NE cor. of Section 35, Block W-X, G.C.&S.F. Survey.

Eastland County

Dale Oil & Refining Co.'s No. 12 W. U. Fox, 750 feet north and 1,050 feet east of the SW cor. of their 45.5-acre lease out of Section 67, McLennan County School Land, Leagues 3 and 4. Goodwin and others' No. 2 J. V. and R. A. Parker, 680 feet north and 224 feet west of the SE cor. of the J. V. and R. A. Parker 25-acre tract out of the W. Van Norman Survey. E. V. Parsons and others' No. 1 J. O. Calvert, 600 feet south and west of the NE cor. of Lot 9, McLennan County School Land, League 2. E. V. Parsons and others' No. 2 J. A. Jones, 600 feet south and east of the NW cor. of Lot 5 out of the west third of the T. A. Howell Survey. L. Teatsorth and others' No. 4 J. L. Johnson, 1,320 feet north and 1,170 feet west of the SE cor.

QUALITY

WITH US, QUALITY IS NOT AN EMPTY AND CONVENIENT WORD . . . BUT THE VERY BACKBONE OF EVERY INGREDIENT AND OPERATION THAT ENTERS INTO THE MANUFACTURE OF PAINTS AND PROTECTIVE PRODUCTS THAT BEAR THE NAME ARCO . . . YOUR ASSURANCE OF LASTING PROTECTION AND COMPLETE SATISFACTION.

THE ARCO COMPANY, CLEVELAND, OHIO
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PAINTS • VARNISHES • ENAMELS • LACQUERS

This is another of a series on specifications—keep for reference in ordering.

BARSCO

Forged Steel Braden Heads

Here's another BARSCO product that, because of its more modern superior design and *forged steel* [can't break] construction, renders a *longer service - - more economical* because fewer replacements - - approximately *less than one-half the weight* of the ordinary cast iron head.

The *forged steel* from which the head is made has a carbon content of from 50 to 60 points and tensile strength of from 90,000 to 110,000 pounds. Will stand up under the most severe service—*no danger of breakage.*

For working pressures up to 4000 pounds

"Barsco" Forged Steel Braden Heads are provided with an inner thread into which a short piece of casing is screwed. The head is then lowered into position below the derrick floor and set up. Outlets are threaded for 2-inch or 3-inch pipe. These heads are furnished with rubber rings for packing and a split steel ring which can be removed, allowing the couplings to be pulled through head without breaking any connections. Furnished with either solid or split Stuffing Box.

Prices and weights furnished upon application.

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of the NW of Section 11, Block 4, H. &T.C. Texas Pacific Coal & Oil Co.'s No. 1 C. E. Allen-B, 220 feet south and 310 feet east of the SW cor. of the A. McCormick Survey and located in the J. H. Price Survey. Cranfill & Reynolds' No. 1 B. Watson, 150 feet south and 1,470 feet east of the NW cor. of the J. A. Syfreatt Survey. S. A. Hopkins and others' No. 1 S. A. Davis, 1,005 feet north and 1,330 feet west of the SE cor. of the N half of Section 54, Block 4, H. &T.C. J. E. Lewis and others' No. 1 J. M. Johnson, Section 14, 150 feet south and west of the NE cor. of the SE of the SE of Section 14, Block 4, H. & T. C. Root and others' No. 2 W. M. Kurklin, 330 feet south and 620 feet west of the NE cor. of the north 108 acres of the SE of Section 62, Block 4, H.&T.C. Root and others' No. 2 J. W. Noble, 325 feet south and 900 feet west of the NE cor. of the N half of the NW of Section 25, Block 3, H.&T.C.R.R.

Howard County

Henshaw Oil Corp.'s No. 2 W. R. Settles-C, 1,423 feet south and 184 feet west of the NE cor. of Section 6, Block 32, T-2-S, T.&P.R.R. Louisiana Oil Refining Co.'s No. 2 W. R. Settles, 330 feet south and 2,306 feet east of the NW cor. of Section 6, Block 32, Township 2s, T.&P.R.R. Marland Production Co.'s No. 10 H. R. Clay-A, 250 feet south and 1,962 feet west of the NE cor. of Section 139, Block 29, W.&N.W.R.R. Sun Oil Co.'s No. 4 W. R. Settles, 1,650 feet north and 330 feet west of the SE cor. of Section 135, Block 29, W.&N.W.R.R. Texon & Marland Production Co.'s No. 6 W. R. Settles-A, 2,266.5 feet south and 2,513.2 feet east of the NW cor. of Section 6, Block 32, Township 2s, T.&P.R.R. Ward Oil Co.'s No. 3 Dora Roberts, 2,310 feet north and east of the SW cor. of Section 137, Block 29, W.&N.W.R.R.

Montague County

Benton-Woods and others' No. 11 R. Hines, 380 feet north and 550 feet west of the SE cor. of their 32-acre lease out of the J. J. Wall Survey, A-1,199. Bridwell Oil Co.'s No. 1 C. H. Howard-B, 1,350 feet south and 450 feet west of the NE cor. of the C. H. Howard 761-acre tract out of the F. Robertson Survey, A-620. Pure Oil Co.'s No. 8 L. Keck-A, 2,310 feet north and 650 feet east of the most westerly SW cor. of their "A" lease out of Lot 5, J. W. Jones Subdivision, William Donoho Survey, A-178.

Jack County

Kiser & Duffey's No. 1 S. M. Jones, 607 feet south and 2,151 feet west of the NE cor. of the M. Mabin Survey, A,413. Panhandle Refining Co.'s No. 2 J. M. Dougherty, 150 feet north and 750 feet east of the SW cor. of the J. M. Dougherty 150-acre tract out of the I. Hughson Survey, A-256. Same company's No. 2 J. H. McKelvey, 330 feet south and 690 feet west of the NE cor. of the J. H. McKelvey 160-acre tract out of the T. Hughson Survey, A-256.

Jones County

Roeser & Pendleton and Landreth Production Corp.'s No. 3 J. H. Grayson, 1,660 feet north and 3,512 feet east of the SW cor. of Section 13, Block 19, T.& P.R.R.

Kent County

Pursley Ranch Development Co.'s No. 1 G. A. Pursley estate, 150 feet north and 300 feet east of the SW cor. of Section 8, Block H, H.T.&B.

Palo Pinto County

Chestnut & Smith Corp.'s No. 1 H. Belding, 200 feet north and east of the SW cor. of the NW of Section 3, A.B. &M. Survey, A-19.

Shackelford County

Cranfill & Reynolds' No. 1 C. Flippin, 410 feet south and 150 feet west of the NE cor. of Section 34, Block 11, T.&P. R.R. Roeser & Pendleton's No. 82 W. I. Cook-A, Section 60, 1,192 feet south and 1,950 feet west of the NE cor. of the SW of Section 60, Block 10, E.T.R.R. Same company's No. 43 W. I. Cook-C, Section 60, 220 feet south and 564 feet west of the NE cor. of the NE of Section 60, Block 10, E.T.R.R. Same company's No. 44 W. I. Cook-C, Section 60, 817 feet north and 568 feet west of the SE cor. of the NE of Section 60, Block 10, E.T.R.R. Same company's No. 19 W. I. Cook-A, Section 61, 220 feet north and 458 feet east of the SW cor. of the SE of Section 61, Block 10, E.T.R.R. Same company's No. 20 W. I. Cook-A, Section 61, 1,522 feet north and 459 feet east of the SW cor. SE Section 61, Block 10, E.T.R.R. Same company's No. 21 W. I. Cook-A, Section 61, 283 feet north and 1,046 feet west of SE cor. of SW of Section 61, Block 10, E.T.R.R. Same company's No. 22 W. I. Cook-A, Section 61, 655 feet north and 981 feet west of SE cor. of the SE of Section 61, Block 10, E.T.R.R. Same company's No. 23 W. I. Cook-A, Section 61, 1,524 feet north and 1,339 feet east of the SW cor. of the SE of Section 61, Block 10, E.T.R.R. Same company's No. 24 W. I. Cook-A, Section 61, 1,088 feet north and 459 feet east of the SW cor. of the SE of Section 61, Block 10, E.T.R.R. Same company's No. 8 W. I. Cook-A, Section 62, 832 feet south and 220 feet east of the NW cor. of the SW of Section 62, Block 10, E.T.R.R. Same company's No. 9 W. I. Cook-A, Section 62, 416 feet south and 639 feet east of the NW cor. of the SW of Section 62, Block 10, E.T.R.R.

Pecos County

Atlantic Oil Producing Co.'s No. 1 J. T. Sellman, 330 feet north and 2,310 feet west of the SE cor. of Section 19, Block "Z," T.C.R.R. Mid-Kansas Oil & Gas Co.'s No. 4 M. A. Smith, 250 feet south and 3,565 feet east of the NW cor. of Section 31, Block 194, G.C.&S.F. Mid-Kansas Oil & Gas Co.'s No. 7 I. G. Yates-H, 250 feet north and 1,330 feet east of the SW cor. of Section 32, Block 194, G.C.&S.F. Gulf Production Co.'s No. 13 M. A. Smith, Tr.-B, 990 feet south and 1,136 feet west of the NE cor. of Section 22, Block 194, G.C.&S.F.

Stephens County

W. N. Baldwin and others' No. 1 R. W. Johnson, 300 feet north and east of the SW cor. of the SE of Section 44, Block 6, T.&P. F. C. Clark's No. 1 R. O. Jackson, 400 feet south and 1,320 feet east of the NW cor. of the NE of Section 20, Block 6, T.&P. Dorothy Oil Co.'s No. 1 G. W. Thorp, 600 feet north and 700 feet east of the SW cor. of the NE of Section 456, S.P.R.R.

Sutton County

Phillips Petroleum Co.'s No. 1 B. H. Cusenbary, 330 feet south and 2,310 feet east of the NW cor. of Section 39, C.C.S.D.&R.G.N.G.R.R. Co. Survey.

Taylor County

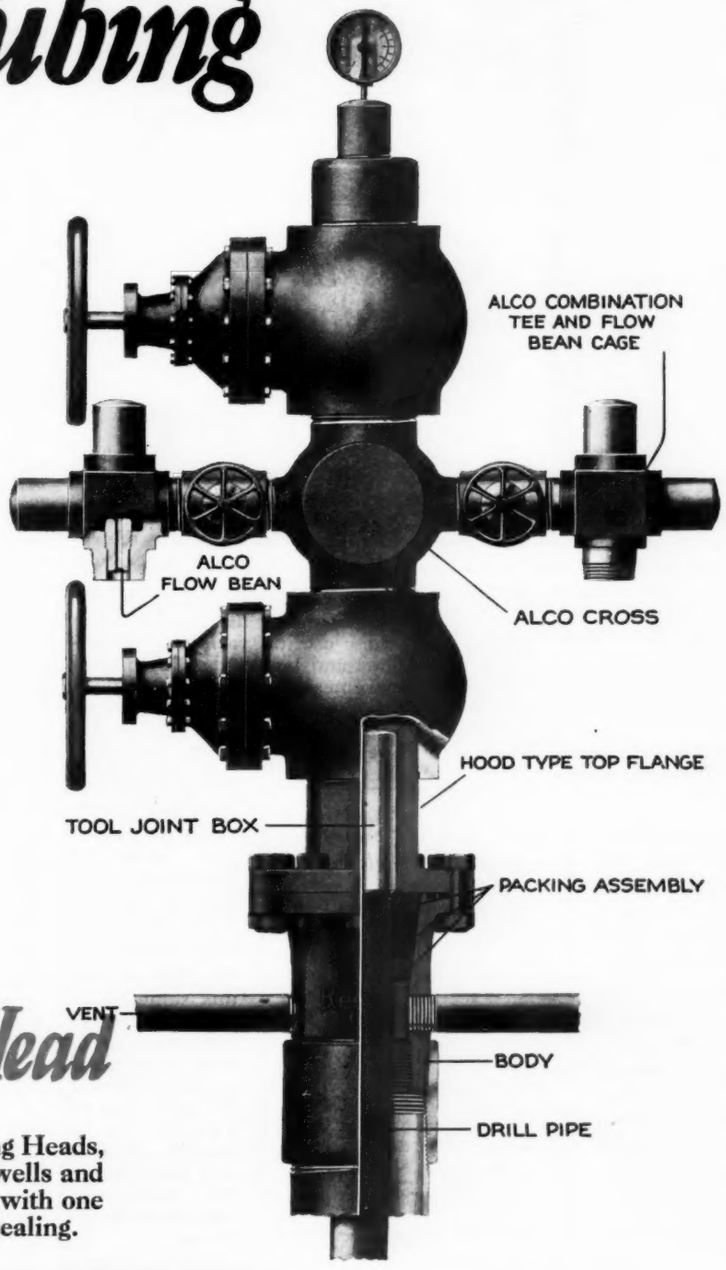
Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Parramore, 330 feet south and west of the NE cor. of the Ephrain Anderson Survey No. 81.

Wichita County

Magnolia Petroleum Co.'s No. 11 J. W. Donohoo, 150 feet south and 1,227 feet west of the NE cor. of the north 80 acres of the south 120 acres of the J. W. Robertson Survey, A-252. Magnolia Petroleum Co.'s No. 139 H. Reilly, 800 feet south and 300 feet east of the NW cor. of the J. Ellis Survey, A-175. Same company's No. 140 H. Reilly, 6,000 feet north and 300 feet east of the most southerly SW cor. of the H. Reilly tract out of the L. C. Denison Survey, A-55. Same company's No. 21 W. W. Viles, 3,243 feet north and 300 feet west of the most southerly SE cor. of the J. Waldschmidt Survey, A-570. Bridwell & Heydrick's No. 3 T. L. Burnett and others, 1,075 feet south and east of the NW cor. of Section 3, H.T.&B., A-132. W. H. Hammon's No. 5 S. H. McCarty-D, 750 feet south and 150 feet east of the NW cor. of the east 20 acres of the west 40 acres of the north 117 acres of the S. H. McCarty 217.3-acre tract out of the W. R. Eaves Survey, A-447. Hammon & Garrett and others' No. 15 S. M. McCarty-B, 150 feet south and 350 feet west of the NE cor. of the west 20 acres of the east 40 acres of the south 70 acres of the north 170 acres of the S. M. McCarty 231-4-acre tract out of the Sam O. Fowler Survey, A-78. Hines & Humble Oil & Refining Co.'s No. 10 J. L. and T. J. Waggoner, 1,117 feet south and 965 feet east of the NW cor. of Section 2, G.C.&S.F., A-772. Holbrook & Wood's No. 24 Kemp & Kempner, 730 feet south and 1,650 feet west of the NE cor. of

For bringing in wells thru drill pipe instead of Tubing

Frequently it is necessary to bring in the well without removing the drill pipe. This Regan Hood Type Head provides a means of setting and packing off the drill pipe so it can be used for tubing. It also provides a means of protection when drilling out baffle plate with small drill pipe prior to running tubing. Weight of the drill pipe resting on two semi-circular packing assemblies forms a positive seal. The body is part of a regular Regan Tubing Head which can be converted to accommodate tubing later, if necessary.



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Regan also manufactures two other types of Tubing Heads, (Regular and Colorado). The majority of deep wells and wells in pressure fields everywhere are equipped with one of these as they offer the most positive means of sealing.

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Central Railroad Bridge, Newark Bay, N. J.

A costly improvement protected by Dixon's **PAINT**

One of the outstanding bridges from an engineering viewpoint erected in recent years is the Central Railroad of New Jersey's 4-track span across the Newark Bay. Working against formidable obstacles, this remarkable bridge, a structure 7,411 feet long and costing, with its necessary approaches about $15,000,000, was opened to traffic in November, 1926.

Approximately 30,000 tons of steel are used in this bridge and its many years of usefulness are guaranteed by the fact that 12,800 gallons of Dixon's Natural and Dark Red Silica - Graphite Paint were used to protect it.

The Central Railroad of New Jersey's selection of Dixon's Silica-Graphite Paint was the result of many years of experience with this product.

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The record of Dixon's Silica-Graphite Paint has influenced thousands of industrial plants, railroads, chemical works and the like to use this same effective paint to resist rust, corrosion, and process deterioration for more than 65 years. It is equally efficient as a protector of wooden, iron and steel structures.

Yes; Dixon's comes in several serviceable colors

Many people think of Dixon's Silica-Graphite Paint as unattractive. Actually it gives a fine durable semi-gloss finish, and it may be had in three tones of gray, dark red, green and black. There is also Dixon's Aluminum Graphite Paint for a silver-gray heat-reflecting finish.

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JOSEPH DIXON CRUCIBLE COMPANY
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Established 1827

DIXON'S SILICA GRAPHITE PAINT

ADEQUATE PROTECTION AT MINIMUM ULTIMATE COST

Block 82, Kemp Wichita Valley Land. W. B. Omohundro's No. 19 J. R. Pace, 475 feet north and 750 feet east of the SW cor. of the north 46.24-acre tract of the south 99.5 acres of the J. R. Pace 347-acre tract out of the J. R. Scott Survey, A-255. Ryan Petroleum Corp.'s No. 100 G. L. Nance, 450 feet south and 1,059 feet west of the NE cor. of the G. L. Nance 984.8-acre tract out of the Sam O. Fowler Survey, A-78. Staley & Wynne's No. 4 Kemp & Kempner, 150 feet south and 1,050 feet west of the NE cor. of Block 82, Kemp Wichita Valley Land. United Producers Co.'s No. 2 J. L. and T. J. Waggoner, 450 feet north and 150 feet east of the SW cor. of Lot 36, H. George Survey, A-454. Same company's No. 3 W. L. Hodges, 150 feet north and 1,350 feet west of the SE cor. of the W. L. Hodges 214-acre tract out of the H.T.&B. Survey No. 1, A-139. Roy F. Wright's No. 2 Mrs. G. Jennings, 1,470 feet south and 1,350 feet east of the NW cor. of Section 12, H.T.&B., A-473.

Wilbarger County

Burton & Shaw's No. 1 W. T. Waggoner-F, 150 feet north and west of the SE cor. of the SW of the SW of Section 42, M.E.P.&P. Survey. Empire Holding Co.'s No. 6 G. B. Ancell, 450 feet north and west of the SE cor. of the NE of the SE of Section 2, Block 7, H.&T.C. Fain-McGaha Oil Corp.'s No. 2 W. T. Waggoner-I, 450 feet south and 150 feet east of the NW cor. of the east 40 acres of the west 120 acres of the south 160 acres of the north 480 acres of Section 37, Block 4, H.&T.C. John O'Neil's No. 1 R. Rainwater, C of the south 45 acres of the east 180 acres of Section 2, Waggoner Colony Subdivision.

Winkler County

Amerada Petroleum Corp.'s No. 2 E. W. Cowden, 2,200 feet south and 1,650 feet east of the NW cor. of Section 3, Block B-12, School Land. Same corporation's No. 12 Lum Daugherty, 330 feet north and 2,310 feet west of the SE cor. of Section 3, Block 74, School Land.

Empire Gas & Fuel Co.'s No. 2 Lum Daugherty, 330 feet north and 2,310 feet east of the SW cor. of Section 3, Block 74, School Land. Same company's No. 3 Lum Daugherty, 330 feet north and 990 feet east of the SW cor. of Section 3, Block 74, School Land. Empire Gas & Fuel Co.'s No. 1 Lum Daugherty-B, 2,310 feet south and 990 feet west of the NE cor. of Section 3, Block 74, School Land. Gulf Production Co.'s No. 3 G. W. O'Brien and others, 2,310 feet south and 330 feet east of the NW cor. of Section 31, Block "F," G.&M., M.B.&A. Survey. Humble Oil & Refining Co.'s No. 1 T. G. Hendricks-C (No. 2), 1,320 feet south and 2,310 feet east of the NW cor. of Section 10, Block B-12, School Land. Morris & Henshaw's No. 1 Ida Hendricks, 330 feet north and 1,650 feet east of the SW cor. of Section 28, Block B-5, School Land. Prairie Oil & Gas Co.'s No. 1 J. B. Leck, 330 feet south and 2,310 feet east of the NW cor. of Section 16, Block 74, School Land. Prairie Oil & Gas Co.'s No. 1 Tobe Morton, 330 feet north and 1,650 feet west of the SE cor. of Section 27, Block B-12, School Land. Pure Oil Co.'s No. 13 Grisham-Hunter-C, 330 feet north and 1,650 feet west of SE cor. Section 45, Block 26, School Land. Pure Oil Co.'s No. 14 Grisham-Hunter-C, 990 feet north and 2,310 feet west of the SE cor. of Section 45, Block 26, School Land. Republic Production Co.'s No. 6 Grisham-Hunter-A, 990 feet north and 2,310 feet east of the SW cor. of Section 45, Block 26, School Land. Roxana Petroleum Corp. and The Texas Company's No. 5 E. W. Cowden-A, 2,200 feet south and 990 feet east of the NW cor. of Section 3, Block B-12, School Land. Roxana Petroleum Corp and others' No. 1 Lum Daugherty, 2,310 feet south and west of the NE cor. of Section 3, Block 74, School Land. Southern Crude Oil Purchasing Co.'s No. 3 Grisham-Hunter, T-89-C, 2,310 feet north and west of the SE cor. of Section 35, Block B-5, School Land.

Young County

R. P. Dorian and others' No. 1 C. W. Johnson, 150 feet south and west of the NE cor. of Lot 12, Edward W. Sergeant Survey, A-253.

Corrected Locations

In Archer County: Panhandle Refining Co. & Grisham's No. 5 W. R. Farmer-A, 1,432 feet north and 3,658 feet east of the SW cor. of the J. Poitevent Survey No. 1, A-347.

In Brown County: Root & Rhodes' No. 1 A. K. White, 150 feet north and east of the SW cor. of the east 44 acres of the north 80 acres of the A. K. White 100-acre tract out of the E. A. Evans Survey No. 603.

In Coleman County: Byrd & Goldston's No. 3 W. L. Moody, 150 feet south and 360 feet west of the NE cor. of Lot 12, J. Scott Survey No. 665.

In Haskell County: Lillian Hill's No. 1 M. B. Proctor and others, 150 feet north and east of the SW cor. of Lot 24, A. Rodriquez Survey, A-350.

In Howard County: Merrick & Lamb's No. 6 H. R. Clay, 250 feet north and 1,962 feet west of the SE cor. of Section 126, Block 29, W.&N.W.R.R. Henshaw and others' No. 2 W. R. Settles-A, 330 feet south and 1,884 feet east of the NW cor. of Section 6, Block 32, T-2-S, T.&P.R.R.

In Palo Pinto County: Gordon & Gholson's No. 2 C. V. McDonald, 1,500 feet north and 300 feet west of the SE cor. of Section 33, Block 1, T.&P.R.R.

In Reagan County: Big Lake Oil Co.'s No. 153 University Land, 1,720 feet south and 2,240 feet west of the NE cor. of Section 36, Block 1, University Land.

In Stephens County: Phillips Petroleum Co.'s No. 1 J. W. Powell, 150 feet south and 660 feet east of the NW cor. of the J. W. Powell 80-acre tract out of Section 9, Blind Asylum Land.

In Wichita County: Magnolia Petroleum Co.'s No. 130 H. Reilly, 2,125 feet north and 300 feet east of the SE cor. of the J. Waldschmidt Survey, A-570, and located in the L. C. Denison Survey, A-55. Magnolia Petroleum Co.'s No. 12 F. P. Warren-K & G, 150 feet north and east of the SE cor. of the S. George 363-acre tract out of the L. B. Taliaferro Survey, A-541, and located in the William Kepler Survey, A-170. Ryan Petroleum Corp.'s No. 99 G. L. Nance, 750 feet south and 930 feet west of the NE cor. of the G. L. Nance 984.8-acre tract out of the Sam O. Fowler Survey, A-78.

In Young County: Allday Oil Corp. & Carter's No. 1 C. W. Johnson-C, 150 feet south and east of the NW cor. of Lot 8, Edward W. Sergeant Survey, A-253. Allday Oil Corp. & Carter's No. 2 C. W. Johnson-C, 450 feet south and 150 feet east of the NW cor. of Lot 8, Edward W. Sergeant Survey, A-253.

PRAIRIE PIPE LINE SHIPMENTS

The Prairie Pipe Line Co.'s statement of business done in October shows deliveries to customers of 6,254,380.23 bbls., an average of 201,754 bbls. per day. This was the largest month's business in the history of the company. It does not include the large quantity of oil shipped to the Gulf Coast through the lines of the Pure Pipe Line which is in large part owned, and is operated by the Prairie company

Daily average shipments of the Prairie Pipe Line Co. in recent months were as follows:

May	176,792
June	176,585
July	183,913
August	194,240
September	193,153
October	201,754

TO EXPLORE FOR OIL IN CHILE

DENVER, Colo., Nov. 10.—The Araucana Corp. has been organized with Max W. Ball, president; R. A. Brett, vice-president and general manager; Dr. J. W. Miller, vice president; E. P. Randolph, secretary and treasurer. The American offices will be in Denver and the South American offices in Punta Arenas, Chile.

Roy Holloman, petroleum geologist, who has been in consulting practice in Denver with Dean E. Winchester, will take charge of the geological exploration work in Chile, sailing before December 1.

TANK WAGON PRICES IN FIFTY CITIES

(Continued from Page 170)

GASOLINE PRICES EFFECTIVE NOVEMBER 1, 1928

Table showing gasoline tank wagon prices as of November 1, 1928, exclusive of taxes, in 50 representative cities, including the amount and the date of changes since October 1, 1928. High and low prices and state taxes also given.

	Prices Oct. 1	Oct. changes	Prices Nov. 1	High and Low 1927		1926		Tax Nov. 1 1928
Birmingham, Ala.	16.0	....	16.0	18.0	14.0	20.0	16.0	4.0
Phoenix, Ariz.	14.0	....	14.0	19.0	16.0	22.0	19.0	3.0
Little Rock, Ark.	16.0	....	16.0	15.0	11.0	18.0	14.0	5.0
San Francisco, Calif.	14.0	....	14.0	14.0	9.0	16.0	13.0	3.0
Denver, Colo.	16.0	....	16.0	18.0	13.0	20.0	16.0	3.0
Hartford, Conn.	18.0	....	18.0	22.0	18.0	21.0	17.0	3.0
Dover, Del.	17.0	....	17.0	19.0	16.0	20.0	17.0	3.0
Jacksonville, Fla.	17.0	....	17.0	16.0	10.0	19.0	12.0	5.0
Atlanta, Ga.	18.0	....	18.0	18.0	10.0	21.0	14.0	4.0
Boise, Idaho	20.5	....	20.5	22.5	19.5	24.0	20.0	4.0
Peoria, Ill.	15.2	....	15.2	18.2	9.0	19.2	10.5	...
Chicago, Ill.	15.0	....	15.0	17.0	14.0	18.0	15.0	...
Indianapolis, Ind.	15.2	....	15.2	18.2	10.2	19.2	16.2	3.0
Des Moines, Iowa	15.5	....	15.5	16.0	9.9	19.5	16.0	3.0
Wichita, Kans.	13.8	....	13.8	15.8	10.8	16.8	14.8	2.0
Louisville, Ky.	16.0	....	16.0	17.0	13.0	20.0	17.0	5.0
New Orleans, La.	14.5	16 12.5	12.5	14.5	11.5	17.5	13.5	*3.0
Augusta, Me.	18.0	....	18.0	22.0	17.0	21.0	17.0	4.0
Baltimore, Md.	17.0	....	17.0	19.0	16.0	19.0	15.0	4.0
Springfield, Mass.	18.0	....	18.0	22.0	12.0	21.0	17.0	...
Detroit, Mich.	15.8	....	15.8	18.8	11.8	19.8	16.8	3.0
Duluth, Minn.	16.5	....	16.5	19.5	12.5	20.5	15.5	2.0
Natchez, Miss.	16.5	....	16.5	15.5	12.5	18.5	15.5	4.0
Kansas City, Mo.	14.9	....	14.9	17.9	10.9	18.9	15.9	*3.0
Helena, Mont.	20.5	....	20.5	22.0	19.5	24.0	21.0	3.0
Omaha, Neb.	15.25	....	15.25	14.25	12.25	19.25	14.25	2.0
Reno, Nev.	18.0	....	18.0	18.0	15.0	19.5	16.5	4.0
Newark, N. J.	16.0	....	16.0	19.0	16.0	19.0	15.0	2.0
Albuquerque, N. Mex.	17.0	....	17.0	20.0	16.0	26.5	20.0	5.0
New York, N. Y.	18.0	....	18.0	22.0	17.0	21.0	17.0	...
Charlotte, N. C.	17.0	....	17.0	19.0	16.0	19.5	15.5	4.0
Fargo, N. Dak.	17.9	....	17.9	20.9	12.0	21.0	18.9	2.0
Cleveland, Ohio	16.0	....	16.0	19.0	14.0	20.0	16.0	3.0
Tulsa, Okla.	14.0	....	14.0	15.0	10.0	17.0	13.0	3.0
Portland, Ore.	14.5	....	14.5	14.5	11.0	16.0	13.0	3.0
Philadelphia, Pa.	17.0	....	17.0	19.0	12.0	20.0	17.0	*3.0
Providence, R. I.	18.0	....	18.0	22.0	17.0	21.0	17.0	2.0
Charleston, S. C.	17.0	....	17.0	19.0	15.0	19.5	15.0	5.0
Huron, S. Dak.	16.3	....	16.3	19.5	11.5	20.5	14.0	4.0
Memphis, Tenn.	16.0	....	16.0	15.0	10.0	18.5	13.5	3.0
Dallas, Tex.	14.0	....	14.0	13.0	10.0	17.0	13.0	2.0
Salt Lake City, Utah	18.5	....	18.5	20.5	16.5	22.5	18.5	3.5
Burlington, Vt.	18.0	....	18.0	22.0	17.0	21.0	18.0	2.0
Norfolk, Va.	14.0	....	14.0	18.0	16.0	19.0	15.0	5.0
Washington, D. C.	17.0	....	17.0	19.0	16.0	19.0	15.0	2.0
Charleston, W. Va.	17.0	....	17.0	18.0	16.0	19.0	15.0	4.0
Milwaukee, Wis.	15.1	....	15.1	18.1	13.1	19.1	16.1	2.0
Casper, Wyo.	16.0	....	16.0	18.0	14.0	20.0	17.0	3.0
Seattle, Wash.	14.5	....	14.5	14.5	11.0	16.0	13.0	2.0
Minneapolis, Minn.	16.2	....	16.2	15.2	11.1	20.2	15.2	2.0
Average price	16.34	....	16.30	18.15	13.55	19.777	15.713	2.99

*State tax 2 cents, remainder city tax.

PURE OIL PERFECTS CONTINUOUS METHOD

(Continued from Page 172)

sample of gasoline, a precipitate between the two liquid layers after agitation indicates that the material is sour. If this precipitate is black, it is a positive indication that the predominating compound present is hydrogen sulphide. If this impurity is not present, there will be either no discoloration or an orange or yellow discoloration. If the latter two, the compounds generally present are those known as "mercaptans" a different series of organic-sulphur compounds. If no discolorization at all is obtained in a test of this kind, a pinch of sulphur is added and agitation again resorted to. After settling, in a great many cases, the precipitate mentioned above is formed. It is on this same laboratory test procedure that the commercial size treating systems are operated. In other words, the sweetening of the gasoline resorted to, to lower the sulphur content and remove objectionable odor, is accomplished in a closed system similar to that described in my previous article.

Referring to the flow diagram, the gasoline to be sweetened is pumped by centrifugal pump (1), where it receives its initial contact with the doctor solution, the doctor having been brought in with the gasoline into this pump from settling towers (4), (5) and (6). The mixture is discharged either through orifice plate mixers (2) or (3) into settler

Greenspon's pipe in another line through Kansas.

Greenspon's ODEE pipe for gas lines is always delivered on the job when wanted. If you say so, it will be in the field, ready and waiting, when the ditcher gets there.

Every length of ODEE pipe is thoroughly inspected. The ends are cut clean and beveled for perfect welding. Double lengths, that save 50% of field welding, are obtainable from stock.

Write, wire, or 'phone for quotations on any size gas or oil pipe or casing.

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STANDARD "Tar-Baby" Heaters are an advanced idea in Heater Construction. They embody features which guarantee Quicker Delivery of *"Hot Stuff"—Saves Time and Labor.*

STANDARD "TAR BABY" HEATERS

Insure continuous every-day performance—No delays—No Loss of Time.

The Increasing Popularity of these Heaters attests their QUALITY. We invite your investigation of our complete line—prices—etc.

Model "D" Super-Heater

This model used in many of the largest pipe line jobs in the country. 3 sizes—250, 500 and 1,000 Gal. Oil burning only. Ample clearance for rough road work. Write for full specifications, all models, prices, etc.

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Standard Steel Works
North Kansas City, Mo.

LIGHT . . . .
—and plenty of it!

TODAY the driller requires plenty of light for his night operations. And in the MOON Type 6 Turbo Generator he gets it.

Built in two sizes, 3 and 4 KW, there is ample capacity for a large variety of jobs.

In addition, the unique 4 steam nozzle arrangement and the special lubricating system provide unusual flexibility and smooth operation.

MOON
Type 6 Turbo Generators
3 and 4 KW

Write for Bulletin No. 6 explaining its many features.

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"The Working Barrel That Works"

Over sixty thousand now in use from Pennsylvania to Argentine and from Oklahoma to India wherever oil is produced.

No Barrel can compete with the McGregor in price and saving. It comes with the barrels, valves, valve stem all complete at a price slightly more than what the old style Barrel would cost. Pumps as fast as old style barrels that are attached to the tubing.

The only pulling done when you have a McGregor in use is the rods as the complete Barrel is fastened to the rods and comes out when they are pulled. TUBING PULLING is done away with as far as the Working Barrel is concerned. Made for all size tubing. Use "Mac" Ball and Seat.

See your dealer or write us for circular.

In ordering parts refer to these letters

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Sole Manufacturers
BRADFORD, PENNA.

This Coupling Cannot Fail

BY ELIMINATING flexible materials, Fast's flexible coupling eliminates failure. Note the diagram. Flexible bushings, pins, springs, discs and grids are eliminated, and instead a simple mechanical principle is used.

Two spur gears, one on each shaft end, are completely and continuously meshed in oil, with the internal gears of a floating sleeve. The shafts and sleeve turn noiselessly as one unit, allowing free angular and lateral movement.

Replacements become a thing of the past, because the coupling will last as long as the connected machines. Nothing to break. Nothing to replace. There is no power loss, and the oil between the gear teeth, under centrifugal pressure, carries the load.

FAST'S COUPLING
—Self-Aligning—

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tank (4). In passing through orifice plate mixers (2) and (3), the mixture is subjected to further turbulence so that by the time it leaves either of these sets of orifice plate mixers, it has been sufficiently intermixed with the doctor solution to have completed the chemical reactions involved.

Settling Tank

It will be observed that after leaving these orifice plate mixers the material is discharged into the bottom of the settler tank (4), the doctor solution dropping out at this point, and the treated material overflowing into the bottom of settler tank (5). Any doctor solution carried over in the overflow from (4), is provided in settler tank (5) with further settling facilities so the material overflowing to the bottom of settler (6) is practically free of doctor solution. Draw-off lines are provided for the doctor solution settled out in settlers (4), (5) and (6), and these lines are hooked into the suction line leading from the gasoline storage tank to pump (1). In this manner the doctor solution is circulated until it is spent—or in other words, no longer gives a sweetening effect.

In the event that any precipitate by chance is carried over from settler tank (6) through the overflow, (which sometimes occurs) an orifice plate mixer (6A) is provided between tanks (6) and (7). Water is introduced with the gasoline in the inlet of this orifice plate mixer, where it is mixed thoroughly and delivered into the bottom of settler tank (7). The washed material overflows from this settler tank into settler tank (8) where any entrained water is completely removed. The draw-off lines from tanks (7) and (8) are open, and water runs out continuously, the washed, treated material overflowing from tank (8) in storage.

At times the nature of the compounds present in the gasoline are not sufficiently acted on without the addition of sulphur to the mixture of gasoline and doctor. In this event tank (9) is provided, in which is maintained a mixture of gasoline and sulphur, the sulphur being in solution in the gasoline. This is bled into the suction side of pump (1) when it is necessary to use it. It is resorted to only as a means of facilitating the precipitation of settling of the compounds formed. Tank (10) shown in the flow diagram contains the fresh doctor solution. When the system is first started up, the required amount of doctor solution is drawn from this tank into the suction side of pump (1). As soon as sufficient material is in the system, the valve is shut off and gasoline started in and the procedure outlined above followed. After the doctor solution reaches the stage where it no longer gives the "sweetening" effect desired, it is led into spent doctor storage tank (11). The spent doctor in this tank is either revivified or used as a neutralizing agent in the acid sludge separating tanks.

Great Improvement

As in the case of the continuous acid treating system outlined in my previous[1] article, this system was devised by the control board to overcome the same disadvantages over the old type open agitators. This system eliminates evaporation losses incidental to air agitation and is a great improvement over mechanical agitation where the use of stirring devices and similar equipment is resorted to in that it provides more complete reaction between the chemicals.

Of course, more complete reaction with the chemicals used brings about a reduction in the cost of these chemicals. Such a system also makes it possible to materially reduce the labor cost, as it requires only one man in an eight-hour day to do the sweetening required at the Marcus Hook plant, the average throughput over a monthly period with this system being approximately 5,000 bbls. per day. This, of course, means that in order to maintain such an average throughput it is necessary to at times have a still greater throughput than this to offset occasional difficulties that arise which would have a tendency to lower the throughput.

As in the case of the continuous acid treating system described in the previous article, this system has been found to give such satisfaction that it has been made standard at all our other refineries.

[1]The Oil and Gas Journal, August 23, page 120.

PROGRESS IN S.A.E. VISCOSITY NUMBERS

(Continued from Page 172)

solely a standardized number system. There is a tendency to speak of them as specifications—a natural error, as most of the work of the S.A.E. standards committee is on specifications. Herbert Hoover gives a definition for specifications in the foreword to the National Directory of Commodity Specifications, which, in my opinion, is excellent.

He states, "Specifications are the formulated, definite and complete statements of what the buyer requires of the seller." These numbers do not cover quality of lubricants, except the one property—"viscosity." To say that one trade name oil meets S.A.E. viscosity No. 30 does not imply that the lubricant meets any quality standard set up by the society. It only means that the body or viscosity falls within the Saybolt value limits established for that particular grade. One engineer puts it very neatly in a letter to me, when he said:

"In my opinion the S.A.E. number corresponds to size as applied to articles of clothing. A man buys a coat or a pair of shoes to fit and does not confuse fit with quality, but rather gets such quality as his pocketbook will allow; similarly the S.A.E. numbers properly understood will indicate to even the most ignorant consumer, the 'proper fit' in oils for his motor, and the question of quality will be a further consideration."

Application of Numbers

Now as to the application and use of these numbers. The Chrysler Corp. made use of the numbering system in its instruction books in the fall of 1927, just about one year ago. Since then most of the large production automobile companies have adopted them. This includes the various units for General Motors, Studebaker, Ford and Packard. This is not, by any means, all of the list, but most of the larger ones.

As regards the oil companies—our 1928 edition of the S.A.E. handbook which was printed in February, lists 33 oil refiners and distributors who are using the S.A.E. viscosity numbers in their lubrication chart or on their containers, or both. I am advised that there are now over 50 companies who have adopted these numbers. A great deal of interest has been shown, and the adoption by so many of the companies has been very gratifying.

A further standardization development which might be mentioned is the application of a very similar viscosity numbering system to transmission and rear axle oils. It is a logical move. We have the problem of how to recommend transmission and rear axle lubricants to the car owner, and it is to be met in the same manner. The society is at present working on this development together with the D-2 committee of the A.S.T.M., and a successful solution is looked for soon. This standardization will apply to oils only—greases not being included.

The work remaining to be done is this: The automobile companies are recommending by viscosity number. The refineries and distributors are using the viscosity numbers in their lubrication charts and on their containers. We want the car owners to purchase crankcase lubricants by viscosity number. This means that the man at the filling station must familiarize himself with the lubrication chart of the trade-mark oil he is handling. If a car owner asks for No. 30 oil, he should know whether that means his medium, or his heavy grade, or his grade A or B, as the case may be. Also if the careless motorist just asks for a quart of oil, without specifying grade, I believe the filling station operator should know what his lubrication chart calls for for the particular make of car, or better still, what the car manufacturer recom

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Permanence

An O'Brien Steel Derrick is not a one-well proposition. The first cost may be more than for a wooden derrick, but it represents an investment in indefinite use and practical indestructibility. There is no rotting away in the corners—no warping—no breaking of defective timbers. The O'Brien Steel Derrick is as permanent equipment as it is possible to make. Our derricks have drilled 25 wells and are still in condition to drill as many more.

Why Experiment? O'Brien Derricks will drill your wells and pull your casing.

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"Specify Patrick Carbon"

CARBON for drilling purposes lasts longer and gives very much better service when it is wisely selected. PATRICK CARBON is scientifically graded with this single purpose in mind. There is economy in its use.

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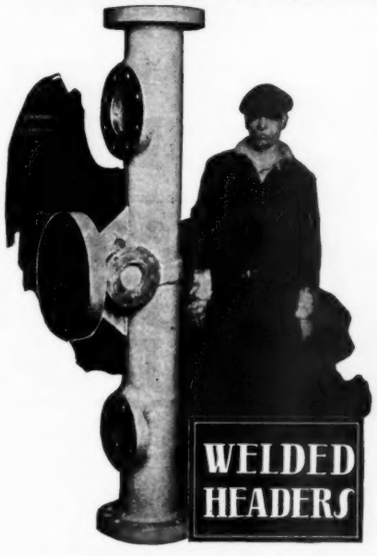

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OF the many ramifications of this company's service to the oil industry, no feature has better proved our fitness in the field than the special welded work we are called upon to produce.

Headers, manifolds, fittings, pipe of all varieties —welded and fabricated to the most exacting specifications. Prompt and economical, too!

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Gott Water Can
Clean-pure sparkling water ready to drink at all times. No matter where you are, the GOTT Water Can is health insurance.
Comes in 1½, 3, 5 and 10 gallon sizes. Your supply store has them.
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WATER CAN
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No Side Lines

You can get more good out of The Oil and Gas Journal than you can from all other oil papers combined.

It is edited, compiled and published with but one thought in mind—and that is to give you absolutely reliable, honest and accurate information every week—52 times a year.

The Oil and Gas Journal is the oldest oil publication in the world. Since the very beginning it has devoted all its energy and talents to but one thing—publishing The Oil and Gas Journal.

It has no side lines—it never will. The Oil and Gas Journal realizes that its readers are eager to get complete, accurate, quick information UNDER ONE COVER without being forced to purchase supplementary reference books at premium prices.

Therefore, it bends all its efforts toward giving you the benefits of its entire organization which extends in all directions from Tulsa, Okla., to the far corners of the world,—Russia, Persia, Rumania, Palembang, Chili, Venezuela, Italy, Yugoslavia, Borneo, Egypt, Ceram, Japan, Canada.

Read The Oil and Gas Journal every week and always renew your subscription promptly.

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PRODUCING REFINING ENGINEERING MARKETING
Tulsa, Oklahoma

MYERS Self-Oiling POWER PUMPS

New developments in Myers Self-Oiling Bulldozer Power Pumps have created new service values for those who rely on them for pumping operations of any kind. Dependability, lower operation costs, increased volume, longer life, are but a few of the reasons for the general adoption of Myers Self-Oiling Power Pumps wherever there are water problems to be solved. Twelve sizes for shallow pumping—five sizes for deep service meet installation, operation and volume requirements. Verify these statements by writing us for catalog and information, or ask your jobber or supply house.

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MANUFACTURERS FOR OVER FIFTY YEARS OF MYERS "HONOR-BILT" PUMPS FOR EVERY PURPOSE • WATER SYSTEMS • HAY UNLOADING TOOLS AND DOOR HANGERS

STEEL PLATE CONSTRUCTION
Stills, Refinery equipment of every kind.
Steel Oil Storage Tanks, Condensers,
Fabricated and Erected
RITER-CONLEY COMPANY
General Offices—Pittsburgh, Pa.

mends, and supply it. They should coincide.

Need of Advertising

There is a real need for advertising the S.A.E. system of numbers to the oil retailer and the oil user or the automobile owner. They have both thought for years in other terms, such as light, medium and heavy. For any one trademarked oil, this was satisfactory, but the system is outgrown.

Another condition in the oil marketing which we hope will be improved is the sale at the road-side filling station of low-quality lubricants under no definite trade name. This situation may not be general, but we do know that inferior lubricants are sold in considerable amounts in this manner.

Even though adopted by the automobile manufacturers and the refiners, the use of the viscosity numbers must be made popular. The car manufacturer can do considerable through service letters, to the automobile dealers, but our field of activity is limited, compared to yours. In the first place, it is a numbered grading of lubricants, and you market lubricants. Secondly, you meet directly the men buying oil, on a dealer-customer basis. Emphasize the fact that the automobile engineer who knows the engineering requirements of the car he builds, recommends a certain viscosity for the customer's car, and as a discriminating car owner who wants to get the most from his car, he should follow the factory recommendations, which is to use a high-grade, well-refined lubricant of a definite viscosity range. It seems to me there would be advertising opportunity here of connecting this up with the particular trade name oil you are selling.

PLANS FOR PIPE LINE TO KETTLEMAN HILLS

NEW YORK, Nov. 10.—The General Petroleum Corp., Standard Oil Co. of New York subsidiary, has completed plans for a new pipe line at Kettleman Hills to move production from the new light oil pool discovered by the Mexican Seaboard Oil Co.

Some time ago the Marland Oil Co., which formerly controlled most of the property surrounding the discovery well, contracted with General Petroleum Corp. for the sale of possible production. No price has yet been established for oil from the Kettleman Hills.

The size of the pipe line to be constructed will be dependent upon the expected production of the area. The line will run to an Associated Oil pipe line, unless production should be large enough to justify continuing the Kettleman Hills line to General's main pipe line.

Companies active in the Kettleman Hills section are Marland Oil Co., Mexican Seaboard Oil Co., General Petroleum Corp., Standard Oil Co. of California and the Kettleman Hills Oil Co.

FRANK POTTER DEAD

BRADFORD, Pa., Nov. 9.—Word has been received of the death in India of Frank Potter, former resident of Kane and Smethport. Mr. Potter came to the Bradford oil fields in 1887 and became a drilling contractor and oil producer. From 1916 to 1920 he was treasurer of McKean County. In 1921 he went to Burma, India, under an eight-year contract for work in the oil fields in that country. He was accompanied by his wife and son, Frank, Jr. The latter died there a year ago.

BEN CRAFT DIES

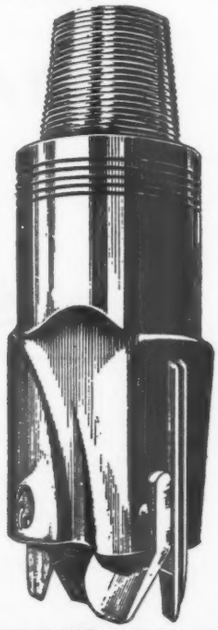
News of the death of Ben Craft, 47 years old, of New York City, export representative of the Crown Central Petroleum Corp., has been received at offices of the company in Houston, Tex. Mr. Craft's death was caused by pneumonia. Burial was in Jackson, Miss.

K-P
THE LINE OF LEAST RESISTANCE

STRAIGHT-HOLE Rotary Drilling Bit Did This in West Texas

In the Earlsboro field—at 1900 feet—in hard broken lime—a hole full of junk—no rock bit on the rig—couldn't get junk out with the bucket—so had to run a "K-P." On top of all of this the pump broke down. But this didn't faze the "K-P"—it went 22 feet through lime—broke through shell—over 5½ hours of this—and then made 70 feet more before coming out.

J. W. Fitzpatrick, driller for C. H. Hubbard, says that the "K-P" was making more than 6 feet per hour when taken out and that the work the one set of "K-P" cutters did would have worn out 6 fish tails. It cleaned the junk and left the hole in perfect shape.



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Also equipment for severe duty such as high pressures, high temperatures and unusual corrosive conditions . . . Complete engineering service furnished on any problem in these industries.

HEAT TRANSFER PRODUCTS, Inc.
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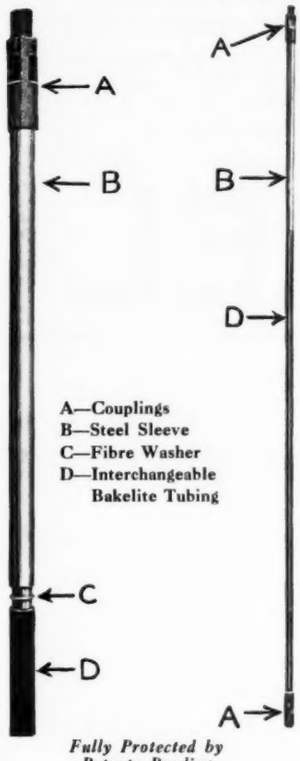

A—Couplings
B—Steel Sleeve
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D—Interchangeable Bakelite Tubing

Fully Protected by Patents Pending

not affected by any fluid pumped from any oil well

Do not pit or become rough.

Do not require repacking of the stuffing box, and, therefore, make a great saving in oil, which is otherwise lost.

There is no limit to the life of the rod, exclusive of the bakelite tubing.

Will pay for itself in a short time in the saving of rubber rings alone.

The bakelite sections of tubing can be replaced in a very few minutes and as they are interchangeable, can be rearranged on the rod so that in case of excessive wear in one spot, the worn sections can be transposed, allowing for the full amount of wear on all the sections.

New sections of Bakelite Tubing can be obtained at a nominal cost.

The superintendent of a large oil company writes us, "It has been in continuous service since installation and has by far excelled, in service, what the writer had expected of it."

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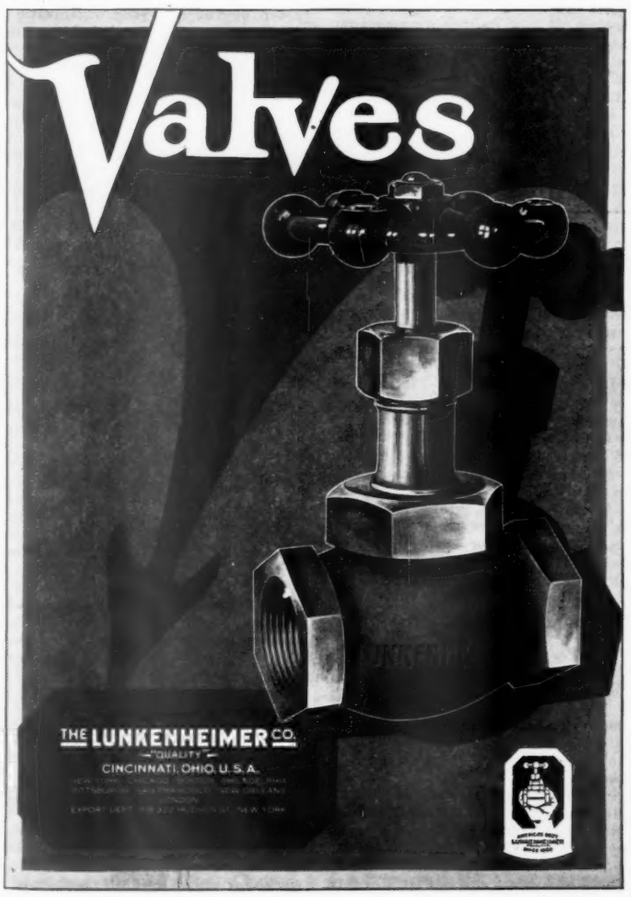
Valves



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"QUALITY"
CINCINNATI, OHIO, U.S.A.

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When digging gets extra tough then you're glad you've got a

PARSONS MODEL 40 TRENCH EXCAVATOR

HERE's a good example of what you can dig through when you've got a Parsons. You might almost think this stuff couldn't be dug, but the machine is doing it just the same.

The job is being handled by the Parsons 21. When the photo was taken, the machine had just completed eleven miles of trench, dug after another make of machine had been forced to give up the job. Nor is it an isolated instance. Twelve other Parsons 21's are digging similar jobs through boulder-studded ground in that section.

For pipe line digging it pays to use the Parsons 21, or its big brother, the powerful Parsons 40. For rush pipe line jobs, the Parsons 40 comes equipped with heavy stub boom, giving depths of 1 to 9 feet. 24", 30" or 36" heavy buckets can be used, with special alloy teeth and sidecutters to dig up to 42" in width.

Complete specifications and performance records on any Parsons machines sent on request.

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Bars, Plates, Rivets, Tool Steel, Shapes, Sheets, Bolts, Welding Rods, Structurals, Tubes, Wire, Concrete, Reinforcing, Rails, Pipe, Turnbuckles, Alloy Steel, Ascoloy, Small Tools, Machine Tools, etc.

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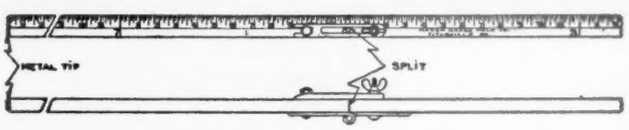
GAUGE POLES

Any Length For Oil Measurements



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There are Over 3,000,000 Feet of

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WESTINGHOUSE

GAS METERS

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PITTSBURGH EQUITABLE METER CO.
PITTSBURGH, PA.

Report Order Placed For Pipe for Gas Line To Monterrey, Mexico

By B. E. V. Luty

PITTSBURGH, Pa., Nov. 12.—The A. O. Smith Corp., Milwaukee, Wis., is understood to have booked an order for electrically welded line pipe for a gas line from the Jennings Field in Zapata County, Texas, to Monterrey, Mexico, involving 140 miles of 12-inch, for the Houston-Gulf Gas Co.

Demand for standard or merchant pipe has had some further seasonal decrease, but demand is as large as would be expected for the time of year. Buying since January 1 has been nearly if not quite as heavy as in the same period of last year, but last year there was about 10 per cent decrease from 1926, hence it appears that this year is running below 1926 in standard pipe, as of course it is in casing and well material generally. Possibly it will be considerably ahead of 1926 in line pipe for oil and gas lines, as there has been much in gas lines and not a little in oil lines.

Demand for seamless tubing continues to run quite heavy, there being some line pipe orders still to be completed in seamless, while demand for mechanical tubing is very heavy.

Pipe mills are running at about 70 per cent, while seamless tube mills average nearly a full operation.

In point of tonnage demand steel in general promises to be rather quiet for a few weeks. Normally there is a tapering off towards the end of the year, and at least a few observers think there was a sort of pre-election boom in steel demand. September bookings were very heavy, giving the mills some backlogs for October, and while October production was heavy, the rate being, say, a couple per cent above the September rate, that could have occurred with relatively light fresh buying, on account of the accumulation of tonnage with which the mills entered the month.

Steel production is now on the verge of dropping off, but making a reasonable allowance for that the year's total steel production will make a new record, passing 1927 by, say, 12 to 14 per cent, and 1926, the record year, by, say, 5 to 7 per cent. Late in the year buying is altogether likely to increase, for delivery after January 1, and at that time the rate of production would increase, it being the regular experience for January to show a gain over December.

Early reports of steel company earnings in the third quarter showed a moderate increase over second quarter, but a fuller summary shows that outside of the Steel Corporation there was practically no increase, whereas there has been a very substantial increase from the first to the second quarter. Tonnage was practically the same in each of the three quarters, much above that in the second half of last year. Apparently, then, the steel industry succeeded in raising its average billing prices materially for the second quarter, but failed for the third quarter. Plans were for higher prices, but evidently there was some slipping. There is no doubt that billing prices are averaging somewhat higher this quarter than last. The Steel corporation reported a substantial increase in earnings from second to third quarter, but that is commonly attributed to heavy movement of Lake Superior iron ore, the same phenomenon having been observed in other years. All earnings, of course, are running above those in the second half of last year.

For the first quarter of the new year advances are planned in sheets and strips, but in other lines mills have an ambition only to hold prices. Sheet mills are likely to make a start within a fortnight in announcing advances of $2 to $3 a ton on blue annealed, black, galvanized and automobile sheets. The tin plate price for the new season is likely to come out within a fortnight, probabilities being that the $5.25 price, as reduced 25 cents a year ago, will be continued.

DEPUTY CHAIRMAN OF ANGLO PERSIAN OIL CO.

William Fraser, C.B.E., has been appointed deputy to the chairman of the Anglo-Persian Oil Co., Sir John Cadman, K.C.M.G. Mr. Fraser is the managing

William Fraser

director in charge of the production department of the company, and managing director of Scottish Oils, Ltd.

W. G. SKELLY THANKS OIL AND GAS JOURNAL

The following letter was received by The Oil and Gas Journal from William G. Skelly, president of the Skelly Oil Co. and of the International Petroleum Exposition and Congress:

"May I take this opportunity to acknowledge the splendid co-operation extended by you and your organization toward the success of the fifth International Petroleum Exposition just closed?

"The exposition was decidedly the biggest, best attended and most successful oil and gas show yet held in Tulsa, and I am not unmindful of the great contribution made through the columns of your publication and the personal activity of your staff members.

"Please accept my sincere thanks, and the assurance that the management and board of directors of the exposition are extremely grateful for your splendid co-operation."

DENY INJUNCTION

SHREVEPORT, La., Nov. 10.—An injunction to restrain the State from collecting the new severance tax while a test of the tax bill enacted by the legislature is pending in the United States Supreme Court, has been denied by Judges Estes, Dawkins and Foster in the Federal District Court at New Orleans. Application for the injunction was filed by the Ohio Oil Co. in whose name the suit attacking the validity of the tax was brought in behalf of the oil and gas industry in this State. Reasons for denying the writ were summed up in the statement that "the governor of the State, supported by the expressed approval of a majority of the legislature, had promised prompt refund of any excess taxes paid in the event the Supreme Court of the United States decides against the constitutionality of the law."

S. O. RADIO NETWORK

Work on one of the largest radio projects of its kind has been started at the Standard Oil Co. plant at Linden, N. J., with the erection of two large towers that will hold the aerial for a radio station. The station will be part of a world network destined to keep all marine and land plants of the company in communication.

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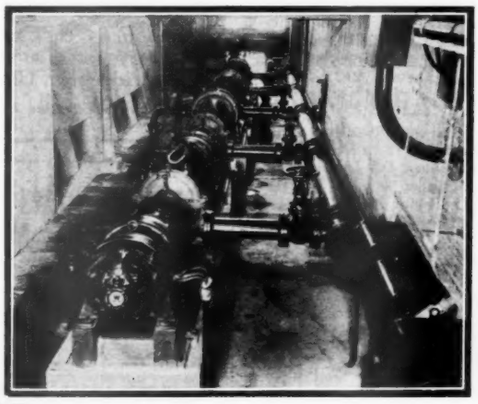

WRITE for our new Bulletin 38 giving full information on these new American-Marsh Split Case Centrifugal Pumps for general service in field and refinery. Greatly improved efficiencies make possible decided savings in operating cost. Motor, steam turbine or belt drive. Sizes ¾-inch to 16-inch; capacities to 11000 g.p.m.; heads to 275 feet.

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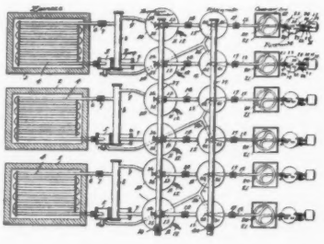
Recent Patents

1,676,895. Process and Apparatus for Cracking Petroleum. Lee J. Gary, Chicago, Ill., assignor to Universal Oil Products Co., Chicago, Ill., a corporation of South Dakota. Filed March 14, 1921, Serial No. 452,214. Renewed February 20, 1928. 2 Claims. (Cl. 196—48.)

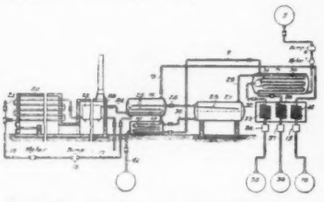


1. An apparatus for cracking hydrocarbon oil, comprising a plurality of independent heating coils, a plurality of expansion chambers, into which heated oil from said coils is discharged, a dephlegmator associated with each of said enlarged expansion chambers, pressure reducing means interposed between each enlarged expansion chamber and its associated dephlegmator, a common header in communication with the vapor space of each of said expansion chambers, a second header in communication with each of said dephlegmators, whereby a uniform pressure can be maintained in said dephlegmators, lower than a uniform superatsmospheric pressure maintained in said enlarged expansion chambers, and means connected to said dephlegmators for condensing and collecting vapors issuing therefrom.

1,690,772. Treatment of Mineral Oils. Thomas G. Delbridge and Henry F. Dure, Philadelphia, Pa., a corporation of Pennsylvania. Filed May 21, 1925. Serial No. 31,744. Four claims. (Cl. 196—147.)

1. The method of decolorizing unrefined hydrocarbon oil, which comprises acid treating the oil, separating from the oil substantially all of the sludge formed, passing air into the acid-treated unneutralized oil while at elevated temperature, to condition the oil for subsequent clay treatment, thereafter adding finely divided clay to the unneutralized oil, and intimately commingling air with the mixture of oil and clay while at substantially elevated temperature below 212 degrees Fahrenheit.

1,676,826. Process of Treating Oils. Frank A. Howard, Elizabeth, N. J., assignor to Standard Oil Development Co., a corporation of Delaware. Filed May 18, 1921. Serial No. 470,568. 3 Claims. (Cl. 196—51.)



2. The method of treating oils to remove natural low boiling constituents therefrom and effect conversion of high boiling constituents of the residue to low boiling products which comprises heating residues to temperatures sufficient to effect conversion of high boiling constituents into low boiling products under pressure sufficient to maintain unchanged residue in the liquid phase, con-

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Curtis

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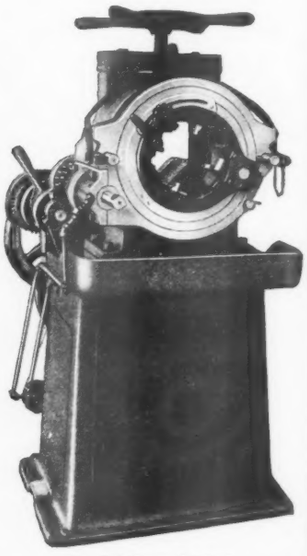

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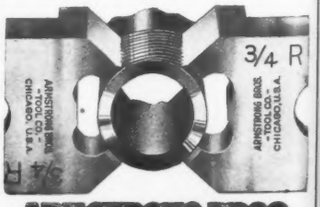

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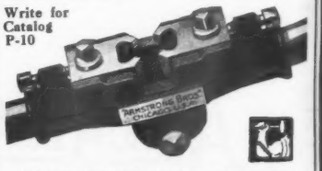

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The Oil Insurance Association is in its tenth year of successful operation, with 100% performance record testifying to the dependability, thrift and speedy and complete satisfaction of its service.

Among the purposes for which the Oil Insurance Association was organized are:

To enable oil operators to secure sufficient dependable insurance to adequately protect their interests.

To furnish property holders and those controlling oil business expert engineering and inspection service, so methods of insuring this class may be standardized, and efficient fire protective devices installed and properly maintained, thereby stabilizing the business to the point which will enable insurance companies generally to accept the class at fair cost and under equitable policy rates.

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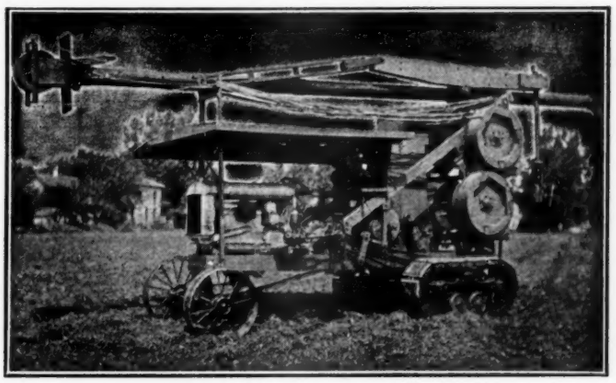

The Ohio Cleaner is never idle. There's always something it can do—always work ahead to which it can be put. It drills shallow wells, cleans old wells before repressuring, pulls casing, drills old wells deeper, prospects for producing sands. Few investments pay such big returns in usefulness.

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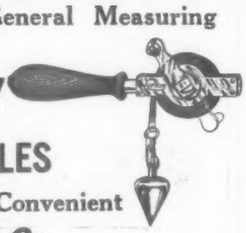
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veying the mixed products of conversion into a chamber at lower pressure, removing the products therefrom, passing fresh oil containing low boiling constituents into heat exchange relation with the conversion products at lower pressure removed from said chamber, and subsequently into heat exchange relation with the conversion products at higher pressure before they enter said chamber without at any time permitting admixture of said fresh oil and said conversion products, withdrawing the vapors evolved from said fresh oil and subjecting the residue to the hereinbefore described heat treatment.

1,677,774. Art of Cracking Hydrocarbon Oils. Eugene C. Herthel and Thomas De Colon Tifft, Chicago, Ill., assignors to Sinclair Refining Co., New York, N. Y., a corporation of Maine. Filed June 22, 1926. Serial No. 117,698. 1 Claim. (Cl. 196—49.)

In processes of cracking higher boiling hydrocarbon oils to produce lower boiling hydrocarbon oils by distillation under pressure at cracking temperatures in which unvaporized oil is withdrawn from the pressure distillation during operation and subjected to further vaporization by its self-contained heat through reduction in pressure, the improvement which comprises taking off vapors from the pressure distillation and condensing them to form a pressure distillate, subjecting the vapors separated from the unvaporized oil withdrawn from the pressure distillation to a fractionating operation, and controlling the fractionating operation by supplying thereto a fraction the constituents of which correspond to components of the desired distillate product to take off as vapors from the fractionating operation a fraction of the constituents of which correspond to the components of the pressure distillate, and condensing this fraction.

LEGAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary
Washington

Call for Bids to Purchase Government Royalty Oil from Salt Creek field, Wyoming.

The Secretary of the Interior invites sealed bids to be submitted at his office, Interior Department Building, Washington, D. C., on or before noon of December 10, 1928, for the royalty oil accruing to the United States from leases on Government land within the Salt Creek oil field in the State of Wyoming, for a period of three (3) years beginning January 1, 1929. For the calendar year 1927 the total Government royalty oil from the Salt Creek field amounted to approximately 1,920,000 barrels, and for the period from January 1 to August 31, 1928, to approximately 1,280,000 barrels, the average gravity in both years being in the range from 36.0 to 36.9 degrees A.P.I.

Bids must be based upon the highest posted field price for oil of like gravity in Oklahoma and Kansas, and or in Wyoming, whichever is the higher, and must be stated as a differential in cents per barrel from such posted price. Delivery of royalty oil will be made on each leasehold for the account of the successful bidder. Payments for the royalty oil are to be made to the Register of the United States Land Office at Cheyenne, Wyoming, on or before the fifteenth (15th) day of each month following that in which delivery is made and shall be computed on the basis of tank measurement with two (2) per cent strapping in terms of standard barrels at sixty (60) degrees Fahrenheit.

The successful bidder will be required to furnish a corporate surety bond in the sum of $250,000 conditioned upon full and complete compliance with the terms of the contract.

The Secretary of the Interior may accept any bid which in his judgment is most advantageous to the Government, and reserves the right to reject any or all bids.

Sealed bids are to be submitted to the Secretary, Department of the Interior, Washington, D. C., the envelope to be marked plainly, "Bid on Salt Creek royalty oil." No bids received after the time herein fixed for submitting bids will be considered.

Additional information can be obtained from the Geological Survey, Department of the Interior, Washington, D. C., or from the field offices of the Geological Survey at Casper, Wyoming.

ROY O. WEST,
Secretary of the Interior.

October 30, 1928.

TEXAS OIL MAPS
County and District Catalog on Application
HEYDRICK MAPPING COMPANY
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DIVIDEND NOTICE
Imperial Royalties Company
Established April, 1920
Will pay the usual monthly dividend of 1½% on its $1.00 par Preferred shares on November 30. This is dividend No. 93 and makes a total of 167½% paid to Preferred shareholders. Also the usual monthly dividend of 15 cents a share will be paid on its Class A Preferred shares on November 30.
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Detailed Operations in All Fields for Month of October

SUMMARY OF ALL FIELDS

Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Eastern	415	1,742	28	67
Central Ohio	113	634	26	55
Lima	27	428	8	2
Indiana	17	95	6	6
Michigan	20	2,765	3	9
Illinois	22	334	16	3
Kentucky	125	3,353	32	5
Tennessee	2	70	0	0
Mississippi	0	0	0	0
Oklahoma	370	140,718	107	38
Kansas	100	5,273	45	13
Texas Panhandle	36	13,226	7	8
North Cent. Texas	343	14,863	156	14
East Cent. Texas	7	600	4	2
West Texas	99	431,668	23	0
Southwest Texas	89	5,929	20	14
East Texas	4	0	0	4
Gulf Coast	92	25,561	43	0
North Louisiana	41	50	20	19
Arkansas	43	2,773	22	7
Wyoming	20	3,444	6	2
Montana	31	2,000	9	3
Colorado	18	2,616	8	0
New Mexico	3	250	1	1
Utah	2	0	2	0
Total Oct.	2,039	658,392	586	273
Total Sept.	1,966	1,142,013	610	223
Difference	73	483,621	24	50

Rigs and Wells Drilling

Field—	Rigs	Drlg.	Total
Eastern	109	371	480
Central Ohio	91	154	245
Lima	6	26	32
Indiana	4	63	67
Michigan	35	68	103
Illinois	2	18	20
Kentucky	12	180	192
Tennessee	4	13	17
Mississippi	0	22	22
Alabama	0	4	4
Oklahoma	172	772	944
Kansas	37	266	303
Texas Panhandle	32	125	157
North Central Texas	88	350	438
East Central Texas	3	11	14
West Texas	77	421	498
Southwest Texas	45	138	183
East Texas	3	19	22
Gulf Coast	25	178	203
North Louisiana	29	85	114
Arkansas	20	59	79
Wyoming	36	151	187
Montana	34	101	135
Colorado	15	84	99
New Mexico	18	84	102
Utah	0	32	32
Total Oct.	897	3,795	4,692
Total Sept.	859	3,718	4,577
Difference	38	77	115

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carter	9	509	2	
Creek	32	930	15	5
Grady	5		1	4
Jefferson	12	217	5	1
Kay	9	1,407	3	4
Muskogee	17	153	7	5
Okfuskee	9	430	3	1
Okmulgee	24	201	11	2
Osage	25	962	7	5
Pontotoc	10	2,352	4	
Pottawatomie	44	65,822	2	
Seminole	93	65,373	14	1
Stephens	25	889	6	2
Tulsa	4	3	1	2
Wagoner	11	11	6	3
Miscellaneous	41	1,459	20	3
Total Oct.	370	140,718	107	38
Total Sept.	317	214,738	93	31
Difference	53	74,020	14	7

Summary of Rigs and Wells Drilling

County—	Rigs	Dlg.	Comp.
Carter	4	16	20
Creek	21	57	78
Grady	3	14	17
Hughes	1	14	15
Kay		16	16
Logan	3	19	22
Muskogee	4	32	36
Okfuskee	14	30	44
Okmulgee	5	47	52
Osage	13	25	38
Payne and Lincoln	4	11	15
Pontotoc	6	26	32
Pottawatomie	37	163	200
Seminole	38	151	189
Stephens	9	35	44
Tulsa	1	11	12
Wagoner	1	8	9
Miscellaneous	8	97	105
Total Oct.	172	772	944
Total Sept.	139	773	912
Difference	33	1	32

CARTER COUNTY

23-1s-3w Martin, Magnolia Pet. Co. 40
10-4s-2w Rexroat, Cotton Belt Pet. 7 60
23-1s-3w Crockett, Schermerhorn et al 1 50
29-1s-3w Miller, Hall & Briscoe 3 80
11-2s-3w Carpenter, Wirt Franklin Pet. Corp. 2 dry
13-4s-2w Sarsota, Roxana Pet. Corp. 1. dry
18-1s-3w Dixon, Max Westheimer 5 45
23-1s-3w Lewis, Magnolia Pet. Co. 5 188
4-2s-3w Powers, Magnolia Pet. Co. 1 46

Wells completed 9
Production 509
Dry 2

CREEK COUNTY

32-19-9 Thompson, Robert Bailey et al 1 dry
9-18-9 McHanon, Curtis Oil Co. et al 1 dry
11-17-10 Wrightsman, Whitten & Wilcox 2 gas
17-16-10 Garrett, F. R. Billingslea 1 dry
Holder, F. R. Billingslea et al 1 dry
13-15-9 Farmer, Olean Pet. Co. 1 90
20-17-7 Robinson, Tidal Oil Co. 3 50
15-19-7 Manuel, Woodland Oil Co. 1 35
20-17-7 Bullet, Houston Oil Co. 1 210
5-18-7 Atkins, Sand Springs Home 1 15
6-19-9 Bond, McMann Oil Co. 1 dry
28-16-9 Luckey, Gypsy Oil Co. 12 dry
7-16-11 Stell, Shaffer O. & R. Co. 1 dry
31-14-9 Venci, McCulloch Oil Co. 1 dry
36-18-7 Koch, Prairie O. & G. Co. 1 gas
26-28-11 Hughes, G. Collins 1 10
13-17-9 Brown, Dedman et al 1 dry
30-17-10 Sneed, Independent O. & G. 2 dry
34-16-10 Page, Shaffer O. & R. Co. 1 40
1-15-10 Ashbury, H. C. Wilson et al 2 dry
21-19-10 Thompson, W. E. Holmes et al 1 dry
33-18-9 Miller, H. U. Bartlett et al 2 dry
3-17-11 Layton, J. E. Wallace 4 gas
34-16-10 Page, Margay Oil Co. 1 160
17-17-7 Tiger, Bengal Oil Co. 5 dry
5-16-8 Emarthia, Magnolia Pet. Co. 3 195
33-17-12 Gilcrease, Roxaline Pet. Co. 1 gas
7-18-7 Byrne, Magnolia Pet. Co. 31 5
35-18-7 Jones, Magnolia Pet. Co. 3 dry
15-15-8 Byrd, Roxana Pet. Corp. 2 60
15-14-8 Fife, Skelly Oil Co. 17 120
17-14-8 Har-lar-char, Flynn & Morgan 1-A gas

Wells completed 32
Production 930
Dry 15
Gas 5
Gas production 15,392,000

GRADY COUNTY

35-5-8w Smith, Magnolia Pet. Co. 2 gas
21-3-5w Spalding, Carter Oil Co. 3 dry
26-5-8w Fawell, Oklahoma Gas Utilities Corp. 13 gas
14-4-8w Cox, Twin State Oil Co. 4 gas
35-5-8w Smith, Magnolia Pet. Co. 3 gas

Wells completed 5
Dry 1
Gas 4
Gas production 143,000,000

JEFFERSON COUNTY

24-6s-6w Spring, Bridwell et al 6 115
20-6s-5w Jennings, Bridwell and Continental Dev. Co. 1 dry
24-7s-6w Smith, Bunn-Marvin Drilling Co. 1 dry
Smith, Bunn-Marvin Drilling Co. 2 gas
17-7s-5w Busby, Gypsy Oil Co. 4 10
Busby, Gypsy Oil Co. 5 20
32-6s-5w Seay, Hambro Oil Co. 1 dry
20-7s-5w Pfile "A," McGinley & Sigler 7 12
28-5s-8w Emerson, Amerada Pet. 1 dry
24-6s-6w Spring, Bridwell et al 7 45
31-6s-5w Seay, Bridwell et al 1 dry
17-7s-5w Busby, Gypsy Oil Co. 6 15

Wells completed 12
Production 217
Dry 5
Gas 1
Gas production 10,000,000

KAY COUNTY

17-29-1 Shimp, Carter Oil Co. and Ona Oil 8 984
White, Marland and Amerada Pet. 3 423
18-29-1 Cole, Tidal Oil Co. 1 gas
28-29-1 Gillig, Nye & Farrell 1 dry
1-28-1w Hampton, W. F. McComas 1 gas
28-28-2 Huddleston, Ewing et al 1 dry
31-28-1 White, Nehr & Wilson 1 gas
10-27-1 Schultz, Superior Oil Co. 1 dry
19-27-1w Jennings, Northern Counties Gas Co. 1 gas

Wells completed 9
Production 1407
Dry 3
Gas 4
Gas production 13,500,000

MUSKOGEE COUNTY

33-15-18 Garrett, Metzger Bros. 1-A dry
27-14-15 Smith, Apex Pet. 1 dry
24-14-16 Gentry, Pritchett et al 1 dry
2-14-18 Callahan, A. Tillman 1-A dry
8-15-15 Friday, Grubbs & Young 2 gas
8-15-18 Stidham, J. L. Haner 3 gas
8-14-19 Cumpton, C. D. Bradley 8 dry
8-15-15 Spencer, Babcock Bros. 2 20
12-14-18 Davis, J. L. Dixon et al 6 dry
30-15-16 Franklin, Harry Smith 1-A 3
17-15-17 Warrior, H. E. Williams 4 15
1-14-18 Francis, W. J. Metzger et al 4 80
22-14-18 Fewel, Howard & Huff 1 dry
5-13-16 Flowers, Bement Oil Co. 3 35
18-13-19 Smith, Sioux Oil Co. 2 gas
2-14-18 Callahan, A. Tillman 2-A gas
18-13-19 Smith, Durham & Smith 1 gas

Wells completed 17
Production 153
Dry 7
Gas 5
Gas production 18,449,000

OKFUSKEE COUNTY

35-11- 9 Berryhill, E. L. Robinson et al 3 dry
23-11-11 Adams, Humphreys et al 2 15
14-10- 8 King, Tidal Oil Co. 1 dry
15-10- 9 Gilbert, Barnsdall Oil Co. 1 gas
16-10-11 Hon, Jarvis & Holm and Winona Oil 1 40
7-10-12 Fife, Atlantic O. P. Co. 1 20
16-11- 9 Knight, Houston Oil et al 1 dry
11-10-11 Simmer, Atlantic O. P. Co. 3 300
11-10-11 Fier, Devonian Oil Co. 3 55

Wells completed 9
Production 430
Dry 3
Gas 1
Gas production 3,000,000

OKMULGEE COUNTY

32-15-13 Roberts, L. H. Wentz 1 dry
21-14-15 Jefferson, E. J. Lambert 1 dry
15-13-14 Scott, Star Dev. Co. 4 gas
34-16-14 Bruner, Harsha & Delaney 3 dry
8-15-12 Chase, Sheridan Oil Co. 3 dry
12-15-12 Replogle, Noble O. & G. Co. 1 10
30-14-11 Madigan, R. Garrett et al 2 dry
22-13-12 Bird, Rebold Oil Co. 1 dry
25-15-14 Sells, Unger Bros. 1 30
14-14-14 Colbert, F. D. Misener 3 25
28-13-14 Doyle, Troutt Drlg. Co. 8 gas
20-15-11 Strip, J. H. Rebold Oil Co. 4 15
19-15-13 Unallotted, Kirkland & Son 1 10
6-14-15 Connor, J. L. Selby 9 20
8-13-14 Myers, A. McInturff 1 6
23-16-11 Lacy, Paraffine Oil Co. and Reliance Oil 3 10
2-13-14 Tucker, A. G. Hazlett 7 15
1-15-12 Stepney, Curtis Oil et al 1-A dry
22-16-11 Escoe, Winemiller Corp. 1 dry
25-16-11 Brown, J. P. Blanigan 1 35
17-11-12 Summers, F. Smith 1-A dry
2-15-14 Anderson, Blake & Keeney 2-A dry
14-14-14 Colbert, J. E. Wallace 11 25
24-13-14 Thornsberry, Iron Mtn. Oil 12 dry

Wells completed 24
Production 201
Dry 11
Gas 2
Gas production 2,000,000

OSAGE COUNTY

9-21- 9 Clint Moore est. and Ohio Osage Oil 10 3
4-20- 9 H. H. Mundy 1 dry
15-25- 8 L. G. Stanley et al 1-A 8
15-24- 9 Marland Prod. Co. et al 9 20
28-23- 9 L. T. I. Oil Co. 399 gas
14-21-10 Okla. Natl. Gas Corp. 764 gas
9-21- 9 Clint Moore est. and Ohio Osage Oil 11 3
17-27- 6 Phillips Pet. Co. 11 40
25-27-11 Mid-Co Oil Corp. 4 10
18-26- 6 Marland Oil Co. 1 dry
22-26- 6 Lewis, Prod. Co. et al 2 200
11-26- 8 Minnehoma Oil Co. 2 35
34-25-11 I. T. I. Oil Co. 337 gas
34-22-10 Rex Pyramid Oil Co. 1 dry
25-26- 8 Nath Jones 1 dry
2-25- 8 A. G. Oliphant 1 7
34-25- 9 Link Oil Co. 10 6
9-21- 9 Clint Moore est. 12 35
30-21-10 Devonian Oil Co. 3 gas
34-25- 8 Marland Prod. Co. et al 10 dry
34-24- 8 Wm. D. Gray Oil Co. 2 560
5-24- 9 I. T. I. Oil Co. 400 gas
32-24-12 Osage Gas Prod. Co. 392 dry
15-23- 8 Presbury et al 1 dry
10-20-11 Devonian Oil Co. 1 35

Wells completed 25
Production 962
Dry 7
Gas 5
Gas production 13,250,000

PONTOTOC COUNTY

13-5-4 Norman & Fleming Dixie Oil 1 30
19-5-3 Berry, Homaokla Oil Co. 6 400
6-4-7 Fenn, W. R. Ramsey 1 dry
10-3-8 Johnson, Douglas O. & G. Co. 1 dry
32-5-7 Crabtree, Belchie & Laskey 1 dry
16-5-8 Yoakum, C. B. Shaffer 9 50
19-5-8 Perry, Louisiana O. R. Corp. 15 725
Whitney, W. R. Ramsey 1 747
Wade, Westheimer & Daube 4 400
4-4-7 Chisholm, McCulloch Oil Co. 1 dry

Wells completed 10
Production 2352
Dry 4

POTTAWATOMIE COUNTY

23-7-4 Cherry, Shaffer O. & R. Co. 1 1375
24-7-4 Coley, Sinclair O. & G. Co. 1 240
25-7-4 Bruno, Gypsy Oil Co. 2 237
19-7-5 Hembree, Magnolia Pet. 2 9219
Youts, T. B. Slick 1 3799
20-7-5 Guinn, Mid-Cont. Pet. Corp. 1 4495
23-7-4 LeClair, Gypsy Oil Co. 2 2312
McGee, Interocean Oil Co. 4 400
McGee, Interocean Oil Co. 5 858
24-7-4 Lewis, Blackwell O. & G. Co. 1 170
Wilbarn, Magnolia Pet. 1 224
Bladin, Sinclair O. & G. Co. 5 405
25-7-4 Cherry, Blackwell O. & G. Co. 4 290
Brun, Gypsy Oil Co. 1 240
Cherry, Phillips Pet. Co. 1 20
19-7-5 Hembree, Magnolia Pet. 4 5320
Kitch-ee, Sinclair O. & G. 1 1560
23-7-4 McGee, Interocean Oil Co. 6 900
Cherry, Shaffer O. & R. Co. 2 820
McGee, Gypsy Oil Co. 4 10
McGee, Gypsy Oil Co. 5 80
24-7-4 Lydick, Phillips Pet. Co. 1 95
25-7-4 Collins, Gypsy Oil Co. 2 1000
19-7-5 Youts, Independent O. & G. 6 2135
Youtsree, Magnolia Pet. 3 3500
20-6-5 Deister, Roxana Pet. Corp. 1 dry
29-5-5 Butler, Ogg Pet. Co. 1 75
26-7-3 Gose, T. B. Slick 1 dry
24-7-4 Wilbarn, Magnolia Pet. 2 321
25-7-4 Neeley, Sinclair O. & G. Co. 2 1180
20-7-5 H. E. Youts, Magnolia Pet. 2 5925
19-7-5 Nadash, Sinclair O. & G. Co. 1 2905
30-7-5 Bladin, Independent O. & G. 2 1155
25-7-4 Gesselman, Mid-Kansas Oil 2 2110
26-7-4 Dodson, Gypsy Oil Co. 1 1420
19-7-5 Youts, Independent O. & G. 7 2705
C. A. Yants, Magnolia Pet. 2 676
20-7-5 T. Fyke, Magnolia Pet. 1 741
H. E. Youts, Magnolia Pet. 1 2808
H. E. Youts, Magnolia Pet. 3 1701
30-7-5 Stahl, Barnsdall Oil Co. 1 1335
Bladin, Independent O. & G. 1 1280
Lunay, Mid-Kansas Oil Co. 1 415
Stahl, Roxana Pet. Corp. 1 76

Wells completed 44
Production 65,822
Dry 2

SEMINOLE COUNTY

1-9-5 Mayes, Skelly Oil Co. 2 2736
2-9-5 Bruner, Barnsdall Oil Co. 3 58
36-9-6 Davis, T. B. Slick and Gypsy Oil Co. 1 dry
26-8-6 Hoyecha, W. B. Pine 3 1010
Hovecha, W. B. Pine 5 632
33-8-6 C. Brown, Gypsy Oil Co. 2 1042
4-7-6 Walker, Minnehoma Oil Co. 1 dry
11-7-6 Thomas, Carter Oil Co. 1 180
Denmark, Gypsy Oil Co. 3 1955
Bruner, Mid-Cont. Pet. Corp. 4 960
14-7-6 Talley, Blackwell O. & G. 2 475
Tewee, Carter Oil Co. 4 675
Hulhoke, Gypsy Oil Co. 8 1000
Tewee, Independent O. & G. 3 1184
Carl, Skelly Oil Co. 2 515
22-7-6 Candard, Gypsy Oil Co. 3 1100
23-7-6 Hotulke, Roxana Pet. Corp. 2 646
11-7-6 Denby, Magnolia Pet. 2 184
15-7-6 Williams, T. B. Slick 4 583
18-5-8 Fleet, I. T. I. Oil Co. 1 1059
Lucey, The Texas Co. 1 850
14-7-6 Sunny, Prairie O. & G. 5 2210
Sunny, Prairie O. & G. 7 1930
Gibson, Prairie O. & G. 6 1405
10-9-5 Simpson, Magnolia Pet. 5 550
33-8-6 C. Brown, Gypsy Oil Co. 1 1202
4-7-6 Walker, Barnsdall Oil Co. 1 620
11-7-6 Thomas, Carter Oil Co. 3 970
13-7-6 Johnson, Roxana Pet. Corp. 2 1470
Reed, T. B. Slick 1 1500
14-7-6 Hulhoke, Gypsy Oil Co. 7 965
Tewee, Independent O. & G. 5 878
Tewee, Sinclair O. & G. 2 1200
15-7-6 Williams, Barnsdall Oil Co. 1 dry
Williams, Barnsdall Oil Co. 2 dry
Williams, Independent O. & G. 1 dry
Williams, Independent O. & G. 2 1495
Williams, T. B. Slick 9 dry
22-7-6 Canard, Gypsy Oil Co. 2 dry
23-7-6 Cotcha, Gypsy Oil Co. 3 1125
Cotcha, Gypsy Oil Co. 4 1130
Harris, Independent O. & G. 3 855
Harris, Independent O. & G. 4 370
7-5-8 Amos "C," Sinclair O. & G. 2 800
18-5-8 Peter, Gypsy Oil Co. 7 75
Peter, Gypsy Oil Co. 8 40
Nakotche, Sinclair O. & G. 3 560
Lucey, The Texas Co. 2 1650
1-9-5 Ingram, Superior Oil Corp. 1 10
25-8-6 Brooks, The Texas Co. 1 827
26-8-6 Hoyecha, W. B. Pine 4 925
14-7-6 Hulhoke, Gypsy Oil Co. 9 1100
Hulhoke, Gypsy Oil Co. 10 2180
Harjo, Magnolia Pet. 1-B 565
Harjo, Magnolia Pet. 2-B 565
23-7-6 Cotcha, Pure Oil Co. 6 280
Hotulke, Roxana Pet. Corp. 3 120
Hotulke, Roxana Pet. Corp. 4 110
31-7-6 Jefferson, Wigdon & Long 1 40
18-5-8 Culley, Anderson & Pritchard 6 800
Lucy, Burke Greis 1 2
Nakotche, Sinclair O. & G. 2 670
Nakotche, Sinclair O. & G. 4 300
14-7-6 Sunny, Prairie O. & G. 6 915
6-9-8 Smith, Independent O. & G. 1 dry
13-8-7 Foreman, Magnolia Pet. 1 dry
11-7-6 Baker, Blackwell O. & G. 1 410
Denmark, Gypsy Oil Co. 4 95
14-7-6 Talley, Blackwell O. & G. 3 410
Tewee, Carter Oil Co. 6 1380
15-7-6 Williams, Barnsdall Oil Co. 3 dry
22-7-6 Reed, Magnolia Pet. 5 640
23-7-6 Cotcha, Barnsdall Oil Co. 2 937
Cotcha, Carter Oil Co. 4 75
Harris, Independent O. & G. 6 880
Harris, Independent O. & G. 7 880
Harris, Independent O. & G. 8 880
Cotcha, Pure Oil Co. 7 1700
12-8-5 Foster, Prairie O. & G. 1 dry
24-7-6 Moppin, Prod. & Refs. Corp. 1 875
11-9-7 Noble, Prairie O. & G. 1 300
14-7-6 Gibson, Prairie O. & G. 1 dry
11-7-6 Baker, Blackwell O. & G. 2 350
Harjo, Pure Oil Co. 4 770
12-7-6 Wilson, Carter Oil Co. 2 55
14-7-6 Tewee, Independent O. & G. 6 660
15-7-6 Williams, T. B. Slick 7 dry
23-7-6 Cotcha, Pure Oil Co. 8 985
Cotcha, Pure Oil Co. 9 380
24-7-6 Pompey, Sinclair O. & G. and Kingwood Oil 1 630
5-7-7 Smith, Mid-Cont. Pet. Corp. 1 1650
1-5-7 Whitney, Roxana Pet. Corp. 1 dry
14-5-7 Harjo, Mid-Cont. Pet. Corp. 1 gas

Wells completed 9
Production 65,375
Dry 1
Gas
Gas production 30,000,000

STEPHENS COUNTY

25-1 -9w Thomas, Magnolia Pet. 3 gas
7-1s-8w Lane, Margay Oil Corp. 5 dry
18-2s-7w Pennington, George Pace et al 2 dry
Brig, Howe, George Pace 5 70
13-1s-4w M. Green, Magnolia Pet. 7 90
34-1s-8w Burke, Roy Carter 4 90
19-1s-8w Adams, Fossett et al 1 gas
18-2s-7w Bristowe "B," George Pace 2 70
12-2s-8w Fobb "B," Murphy Oil Co. 15 90
30-1 -8w Cook, Magnolia Pet. 11 40
31-1 -8w Heiser, Finkler & McQueen 1 dry
7-2s-7w Bond, Prairie O. & G. 6 50
20-2 -5w Vestal, Martin & Smythe 1 dry
34-1s-8w Nigh, Douthitt & Melton 4 10
Simpson, Medlin et al 3 10
12-1s-4w Hanson, Amerada Pet. 3 95
21-1s-4w Jackson, Clark & Cowden 1 dry
7-2s-7w Bond, Pet. Producers Co. 7 50
18-2s-7w Bristowe "B," Geo. Pace et al 3 10
34-1s-8w Simpson, Lone Eagle Oil 6 50
1-2s-5w Cobb "B," Mudge Oil Co. 9 10
Cobb "B," Mudge Oil Co. 10 10
24-2s-8w Brown, Pace et al 1 dry
12-1s-4w Harmon, Magnolia Pet. 1 10
24-1s-4w Bell, Magnolia Pet. 3 10

Wells completed 2
Production 80
Dry
Gas
Gas production 2,000,000

TULSA COUNTY

27-19-11 Minshall, Sheridan Oil 3 gas
15-19-11 Jones, Sand Springs Home 3 dry
5-19-10 Gaskine, J. Tutin et al 1 gas
13-18-12 Ismael, Posey Short 1-A dry

Wells completed 1
Production
Dry
Gas
Gas production 5,000,000

WAGONER COUNTY

6-19-15 Nave, Minshall et al 1 gas
31-18-18 Lewis, Brinker et al 1-A dry
30-18-15 Drew, W. H. Allen et al 1-A dry
22-18-17 Childers, Elk Drlg. Co. 4 gas
34-17-18 Grayson, H. H. Orr 3 dry
36-16-17 Brown, Hale-Ford Oil Co. 4 dry
30-18-15 Drew, Mechlin et al 1 dry
30-18-18 Tucker, Williams & Sanders 1-A dry
35-17-17 Williams, Vinita Dev. Co. 2 dry
6-19-15 Lewis, Sheridan Oil Co. 1 gas
12-16-15 Barnett, J. C. Carlson et al 4 dry

Wells completed 1
Production
Dry
Gas
Gas production 10,000,000

MISCELLANEOUS COUNTIES

Beckham County—

32-9-22w Barnes, O. & H. Pet. Co. 1 dry
21-9-23 Hawkins, Magnolia Pet. 1 gas

Caddo County—
31-6-9w Gafney, English Drlg. Co. 4.. dry
Cotton County—
30-1s-9w Gleaner, L. E. Bennett 1..... dry
Garvin County—
21-1-2 Wolfe, Gilcrease Oil Co. 1..... dry
Grant County—
22-27-3w Stewart, Argo Oil Co. 3..... 80
18-27-3w Custard, J. V. Bailey 1..... dry
26-27-3w Snouffer, Croxton & Bucklin 1 dry
23-27-3w Martin, Northern Counties Gas Co. 3 ..... dry
Hughes County—
6-8-10 Diamond, Transcont. Oil Co. 1 dry
13-8- 6 Henderson, Gypsy Oil Co. 2.... dry
32-6- 8 Epperley, T. B. Slick 1..... dry
Kingfisher County—
6-16-7w Campbell, Galt Brown Oil 1.. dry
Kiowa County—
18-6-16w Foster, Clarence Walker 1.... dry
Lincoln County—
16-13-4 School land, Bu-Vi-Bar Pet. 1. dry
Logan County—
28-18-4w Quigley, Blackwell O. & G. 1 406
29-19-4w Stephens, Roxana Pet. 2..... 22
17-19-4w Freelove, Roxana Pet. 1-A... gas
30-19-4w Sebrask, Roxana Pet. 2-A... 759
Marshall County—
24-5s-5 Null, E. L. Smith Oil Co. 5.... 30
Null, E. L. Smith Oil Co. 6.... 30
Noble County—
11-24-3 Howe, Geo. Miller et al 1..... dry
Pawnee County—
31-22-7 Coplen, Commercial Drlg. Co. 1 dry
20-20-9 Est., Turner et al 2..... dry
6-20-8 Geo., Prod. Cons. Oil Co. 12.... 15
Payne County—
12-19-1w ———, Gardner Pet. Co. 1... dry
32-18-5 Lamson, W. K. Mote et al 1.. 45
3-18-6 Minnick, Empire O. & R. 1.. 20
Pittsburg County—
8-7-18 Vail, Quinton Speiter Co. 1.... gas
Nowata County—
33-25-17 Verd. River Land Co., Phillips & Milam 21 3
27-26-17 Shonwee, F. Anderson 2..... dry
4-25-17 Glass, Frienden Bros. 1..... dry
Washington County—
17-26-13 Toalson, Wellsville Oil 18.... 4
22-26-13 Vann, Wiser Oil and Earl Beard 1 ..... dry
17-26-13 Toalson, Wellsville Oil 19.... 3
9-27-13 Fowler, Keystone Oil Co. 3.. 3
Fowler, Keystone Oil Co. 4.. 3
9-25-14 Hughes, Noble T. McCall 4.... 5
Rogers County—
20-24-17 Thomas, Wellsville Oil 14.... 5
Thomas, Wellsville Oil 15 25
17-24-17 Everett, Wellsville Oil 11..... 1

Wells completed 41
Production 1459
Dry 20
Gas 3
Gas production 49,000,000

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	19	2,234	9	0
Chautauqua and Elk	5	205	1	1
Cowley	6	0	3	3
Greenwood	15	510	10	1
Marion	5	150	4	0
Sumner	12	748	2	3
Miscellaneous	38	1,426	16	5
Total October	100	5,273	45	13
Total September	66	6,280	22	7
Difference	34	1,007	23	6

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Butler	9	30	39
Cowley	5	37	42
Elk	2	28	30
Ellis	2	14	16
Greenwood	4	25	29
McPherson	1	13	14
Marion	2	10	12
Rooks	0	7	7
Russell	0	7	7
Sedgwick	1	10	11
Sumner	4	15	19
Woodson	0	8	8
Miscellaneous	7	62	69
Total October	37	266	303
Total September	56	243	299
Difference	19	23	4

WELLS COMPLETED
BUTLER COUNTY
5-27-6 Dougherty, Blue Stem Oil Co. 3 150
6-27-6 Sluss, Garden et al 1-C..... 350
5-27-6 Simpson, W. R. Ramsey 3.... 240
7-28-7 Morti, Liggett et al 1 ..... dry
31-24-4 Maxwell, Pure Oil 6 ..... dry
31-26-8 Nichols, John Rogers 2 .... dry
22-27-5 Cranston, Empire O. & R. Co. 5 192
27-27-5 Sherrock, Empire O. & R. Co. 2 182
4-27-6 Schaffer, Rosenthal et al 11... 200
5-27-6 Doughty, Blue Stem Oil Co. 4 350
15-27-5 Glaze, C. L. Brosius et al 1... dry
6-27-6 Sluss, Empire & Larobb 3 .... dry
22-24-3 Brainerd, Connell et al 1 .... dry
6-27-6 Sluss, Empire & Larobb Oil 4. dry
Sluss, Garden et al 5-A ..... dry
Palmer, A. M. Landon 1 .... dry
10-26-4 Ovban, Wichita Pet. Co. 5 ... 150
27-27-5 Hutchinson, Empire O. & R. Co. 3-B 300
3-27-6 Lewis, Davis & Hazlett 8 120

Wells completed 19
Production 2234
Dry 9

CHAUTAUQUA AND ELK COUNTIES
10-31-10 Harris, Tory & Murfin 1 75
16-31-10 McKee, Denton et al 2 ..... gas
3-31-8 Ferguson, Gilliland Oil Co. 1. dry
10-31-10 Webb, Sonner Gas Co. 4 100
5-31-10 Walker, Wilson Jones et al 2. 30

Wells completed 5
Production 205
Dry 1
Gas 1

GREENWOOD COUNTY
2-22-11 Hinds, Simmons & Mid-Continent Pet. 1 ..... dry
30-22-13 Schwab, Skelly Oil Co. 6 150
4-23-13 Inthurn, Ravenhill Pet. Co. 19 40
35-24-5 Claycomb, Griffith et al 1 .... dry
28-24-13 Morris, Derby Oil Co. et al 1.. dry
6-25-9 Wilkinson, Lassen et al 6 175
7-25-9 Henderickson, Kansan Oil Corp. 1 ..... dry
5-25-13 Hollister, Mendenhall et al 1. gas
24-22-11 Braddock, Empire O. & R. Co. 1 ..... dry
22-22-13 Young, Braden & McClure 3.. dry
1-24-8 Burke, Prairie O. & G. Co. 1.. dry
29-22-13 Luthi, Amerada Pet. Corp. 3. 145
4-27-13 Lawrence, Ladow Gas Co. 1 .. dry
7-23-13 Knox, Faulkner et al 1 ..... dry
8-25-13 Boones, Bisnago et al 1 ..... dry

Wells completed 15
Production 510
Dry 10
Gas 1

COWLEY COUNTY
24-34-6 Day, Foster et al 1 ..... gas
24-33-6 Sandstrum, Little Martha Oil Co. 3 ..... dry
12-32-6 Estes, Trees Oil Co. 2 ..... gas
9-32-5 Powers, Krow White Oil Co. 1 gas
20-30-4 Cook, Shawver et al 1 ..... dry
18-35-3 Gaily, Roxana Pet. Corp. 1 ... dry

Wells completed 6
Dry 3
Gas 3
Gas production 2,750,000

MARION COUNTY
22-17-4 Patterson, Phillips Pet. Co. 1. 150
14-17-4 McCoy, Derby Oil Co. 1 ..... dry
23-22-4 Miller, Watchorn O. & G. Co. 1 ..... dry
34-17-4 Kiser, Phillips Pet. Co. 1 .... dry
14-17-4 McCoy, T. C. Johnson 2 ..... dry

Wells completed 5
Production 150
Dry 4

SUMNER COUNTY
35-30-2w Frantz, De Forest Drlg. Co. 2. gas
14-32-2 Scroggins, Roxana Pet. Corp. 1 45
Rothwell "A," Roxana Pet. Corp. 2 80
Gassoway, Wasson et al 12... 60
15-35-2 Griffith, Boxer et al 1 ..... gas
25-31-2 Riverbed, Roxana Pet. Corp. 10 140
36-31-2 Bussard, Washoma Oil Co. 3.. 190
14-32-2 Townsite, National Union Oil Co. et al 1 ..... dry
Scroggins, Roxana Pet. Corp. 3 230
17-35-1 Riley, Hartman & Skaer 1 .. gas
25-31-2 Wiles, Roxana Pet. Corp. 7 .. 3
13-35-2 Jones, Lario O. & G. Co. 1 ... dry

Wells completed 12
Production 748
Dry 2
Gas 3

MISCELLANEOUS COUNTIES
Coffey County—
11-23-13 Ollinger, Sheedy et al 1 35
Bourbon County—
26-23-21 Davis, Fees Bros. 3 9
Dickinson County—
3-12-3 Duffey, Empire Oil & Refining Co. 1 ..... dry
Labette County—
3-33-17 Molider, Bowman & McCune 1 3
Ellis County—
25-12-17w Weigel, Derby Oil Co. 1 .... dry
15-12-16w Dickerson, Davis et al 1 .... dry
Wilson County—
24-28-15 Morse, Charles Lynch 4 50
10-28-15 Pierpont, E. A. Scott 2 ..... dry
Morris County—
10-16-7 Metcalf, General Utilities Co. 1 ..... gas
Reno County—
5-26-4w Williams, Empire O. & R. Co. and Marland 1 ..... dry
Russell County—
32-13-15w Baxter, Keys Pet. Co. 9 150
35-13-12w Taylor, Hartman & Skaer et al 1 ..... dry
32-13-15w Mermis, Keys Pet. Co. 1 700
Rooks County—
28-7-16w Johnes, Mid-West Oil Co. and Skelly Oil 1 ..... dry
McPherson County—
31-18-2w Larsen, Mid-Kansas O. & G. Co. 1 280
29-18-2w Anderson, Mermas, Reeves et al 2 ..... gas
Allen County—
34-24-21 Newton, Oko O. & G. Co. 8 ... dry
10-26-20 Ard, N. S. Sibert 5 5
Anderson County—
10-26-21 Fee, W. A. Brandenburg 1 4
27-21-19 Kellstadt, W. S. Fees 7 30
Kellstadt, W. S. Fees 8 30
4-21-21 Russell, Oko O. & G. Co. 20.. 29
5-21-21 Andrews, Richart et al 1 .... dry
34-21-20 Henderson, Wiser Oil Co. 1 .. dry
4-22-21 Yelton, Hazlett 1 ..... dry
Montgomery County—
20-34-15 Dobson, Consolidated O. & G. 12 ..... dry
5-34-17 Duckworth, Kedge Oil Co. 3. dry
20-34-17 Dobson, Consolidated O. & G. 13 6
5-34-17 Duckworth, Kedge Oil Co. 4. dry
2-32-15 Clevenger, Liggett & Fontaine 2 ..... gas
1-33-14 Taylor, John Lindberg et al 14 ..... gas
13-33-14 Stocker, Central Oil Co. 6 30
32-33-15 Dobson, W. C. Cavert et al 2 25
1-34-13 Brown Land Co. 8 ..... dry
32-33-15 Anderson, Hydraulic Oil Co. 1 35
Dobson, W. C. Cavert et al 3. gas
Anderson, Hydraulic Oil Co. 2 5
Lyons County—
13-21-10 Schroeder, Superior Oil Co. 1 dry

Wells completed 38
Production 1426
Dry 16
Gas 5
Gas production 14,550,000

PANHANDLE FIELDS

Wells Completed

County—	Comp.	Prod.	Dry holes	Gas wells
Carson	3	....	2	1
Gray	22	12,621	4	2
Hutchinson	5	605	..	..
Motley	1	....	1	..
Wheeler	5	....	..	5
Total October	36	13,226	7	8
Total September	22	2,385	4	6
Difference	14	10,841	3	2

Rigs and Wells Drilling

County—	Rigs	Wells Drlg.	Wells S.D.	Ttl.
Carson	3	6	3	12
Gray	13	48	8	69
Hutchinson	4	14	8	26
Moore	4	7	..	11
Wheeler	7	8	3	18
Misc. counties	1	11	9	21
Total October	32	94	31	157
Total September	27	97	28	162
Difference	5	3	3	5

WELLS COMPLETED
CARSON COUNTY
E. Turney, Anderson et al 1..... dry
C. C. Barnard, E. A. Ross 1..... dry
D. Pope, Empire Gas & Fuel 1..... gas

Completions 3
Gas production 37,000,000
Dry holes 2

GRAY COUNTY
E. Hexter, Empire Gas & Fuel Co. 1.... gas
H. Thut, Gulf Production Co. 1..... 75
M. B. Davis, Mordyan Oil & Gas Co. 1.. 2435
Mrs. Parker, Parker et al 2..... dry
M. A. Shaw, Roxana Pet. Corp. 1..... 255
W. Jackson, Delaney et al 5..... dry
M. Langham, The Texas Company 1.... 150
J. S. Morse, Bob Dunlop 1..... 285
Mrs. Parker, Parker et al 1..... dry
M. B. Davis, The Texas Company 2.... 2650
S. McLarty-A, The Texas Company 1.. 731
B. Bull, McIlroy et al 1..... 235
J. S. Morse, Barker & Wetzel 1..... 20
Falkner et al, Danciger & McIlroy 1.... 30
Davis-Shaw, Lefors Pet. Co. 1..... 200
G. H. Saunders, Plains Drilling Co. 1 1440
G. H. Saunders, The Texas Company 6.. 2845
E. J. Case, Edwards et al 2..... dry
W. Jackson, Operators Oil Co. 8..... 200
E. J. Case, South Bend Oil Co. 1..... gas
M. Davidson, Strauss & Allen 1..... 40
M. Langham, The Texas Company 2.... 1030

Completions 22
Production 12,621
Gas production 44,000,000
Dry holes 4

HUTCHINSON COUNTY
Johnson Brothers-Dorsett, Phillips Petroleum Co. 7 100
J. M. Sanford, Huffman Oil Co. 1..... 175
J. J. Perkins-Martin, Phillips Petroleum Co. 17 155
J. M. Sanford-Chap, Phillips Petroleum Co. 3 150
C. H. Jasper-Pat, Phillips Petroleum Co. 1 25

Completions 5
Production 605

MOTLEY COUNTY
Matador Land & Cattle Co., The Exploration Co. 4 ..... dry

WHEELER COUNTY
H. Reeves, Magnolia Pet. Co. 1..... gas
T. C. Jones, Edwards et al 1..... gas
J. Turnbow, Hartel et al 1..... gas
Stuckey, Upham Gas Co. 1..... gas
Brown-Young, Wisch Kamper 1..... gas

Completions 5
Gas production 115,386,000

NORTH AND WEST TEXAS

Wells Completed
West Texas

County—	Comp.	Prod.	Dry holes	Gas wells
Andrews	1	....	1	..
Crane	2	460	..	..
Crockett	2	....	2	..
Fisher	1	258	..	..
Glasscock	1	....	1	..
Howard	19	9,981	2	..
Irion	1	....	1	..
Jones	6	188	4	..
Martin	1	....	1	..
Mitchell	1	....	1	..
Pecos	13	142,540	4	..
Reagan	3	815	..	..
Reeves	1	....	1	..
Runnels	1	....	1	..
Upton	1	....	1	..
Winkler	45	277,426	3	..
Total October	99	431,668	23	..
Total September	112	839,836	21	..
Difference	13	408,168	2	..

North Central Texas

Archer	34	1,127	15	..
Brown	32	645	15	3
Callahan	7	5	5	..
Clay	7	33	3	..
Coleman	20	200	13	3
Comanche	2	....	1	1
Cooke	4	20	3	..
Eastland	19	690	8	1
Erath	1	....	..	1
Foard	1	....	1	..
Jack	7	198	6	..
McCulloch	3	....	3	..
Montague	4	16	1	1
Palo Pinto	2	....	2	..
Shackelford	36	1,162	12	3
Stephens	7	128	2	1
San Saba	1	....	1	..
Throckmorton	4	36	2	..
Wichita	45	1,365	14	..
Wilbarger	46	8,155	11	..
Young	62	1,091	37	..
Total October	343	14,863	156	14
Total September	307	16,804	146	10
Difference	36	1,941	10	4

Rigs and Wells Drilling
West Texas

County—	Rigs	Wells Drlg.	Wells S.D.	Ttl.
Crane	2	7	..	9
Crockett	2	3	5	10
Fisher	3	4	2	9
Howard	11	42	3	56
Jones	2	20	7	29
Mitchell	..	2	1	3
Pecos	7	23	12	42
Reagan	9	3	2	14
Runnels	2	4	5	11
Upton	3	3	3	9
Winkler	35	94	19	148
Misc. counties	12	35	51	98
Total October	88	240	110	438
Total September	91	253	91	435
Difference	3	13	19	3

North Central Texas

Archer	14	28	6	48
Brown	6	35	27	68
Callahan	..	4	3	7
Coleman	3	35	10	48
Cooke	3	6	7	16
Clay	..	..	8	8
Eastland	8	19	8	35
Jack	2	9	7	18
Montague	1	4	3	8
Palo Pinto	3	6	4	13
Shackelford	2	6	1	9
Stephens	5	18	1	24
Throckmorton	..	3	3	6
Wichita	8	24	2	34
Wilbarger	12	14	52	78
Young	8	28	6	42
Misc. counties	2	18	16	36
Total October	77	257	164	498
Total September	96	280	146	522
Difference	19	23	18	24

NORTH TEXAS
WELLS COMPLETED
ARCHER COUNTY
A. B. Wallace, Brown & Lickey 1 17
L. C. Pease estate, Golding-Cochran & Hines 1 ..... dry
J. F. Cernosek, Burns & Long 1 ..... dry
J. T. Richardson, Madden & Hunt 3 ... 80
Andrews, Rathke Oil Co. 5 ..... dry
A. F. Ickert, O. C. Reed et al 1 ..... dry
W. O. Hayter, The Texas Co. 5 ..... dry
J. T. Richardson, Wichita Production Co. et al 1 ..... dry
Jackson, Harrison & Tweet 5 ..... dry
J. T. Richardson, Madden & Hunt 4 35
Turbeville, McLaughlin Bros. 1 ..... dry
W. O. Hayter, The Texas Co. 6 90
J. T. Richardson, The Texas Co. 17 50
W. O. Hayter-A, Gulf Production Co. 4. 22
Parrish, F. Payne et al 4 12
American Refining Co. properties, E. J. Stump & Co. 1 ..... dry
Lyles, Turner & Winemiller 1 ..... dry
Newell, V. O. E. Wright 1 ..... dry
Neimeyer, Consolidated Oil Co. 2 95
Neimeyer, C. W. Gilliland 5 200
J. T. Richardson, Madden & Hunt 5 65
J. T. Richardson, Madden & Hunt 6 62
N. D. Goldsmith, Magnolia Petroleum Co. 16 55
Andrews, Rathke Oil Co. 6 6
J. T. Richardson, The Texas Co. 18 31
Richardson-B, United Producers Co. et al 1 ..... dry
G. H. Plowman et al-B, G. R. Ridgeway 1 ..... dry
J. F. Cernosek, American Refg. Co. and Corlett & White 1 30
J. T. Richardson, Burns & Long 1 ..... dry
H. O. Prideaux, Edwards et al 1 ..... dry
W. F. Neimeyer, C. W. Gilliland 6 185
H. O. Prideaux, Schermerhorn Oil Co. 6 25
R. O. Prideaux, Shappell Oil Co. 13 7
J. T. Richardson, The Texas Co. 19 60

Completions 34
Production 1127
Dry holes 15

BROWN COUNTY
R. Hickman, Humble Oil & Refining Co. 24 5
R. Hickman, Kone Production Co. 16 .. 20
Keeler-C, Mitcham et al 1 ..... dry
Boysen, Kerr et al 2 ..... gas
J. H. Eubanks, Cranfill & Reynolds 13. 75
Kilgore, Curry et al 1 ..... dry
DeBusk, De Lang et al 1 ..... dry
Eads, Diggs 5 ..... dry
Teston, Gilman & McMurray 19 25
Hickman, Kone Production Co. 17 175
Jones, Rowan & Tong 1 ..... dry
Armstrong, Young Bros., Alexander & Woodley Petroleum Co. 4 35
Hickman, Young Bros., Alexander & Woodley Petroleum Co. 11 53
Hickman, Young Bros., Alexander & Woodley Petroleum Co. 12 100
Johnson, Crown Petroleum Co. 1 ..... dry
Fitzgerald, United Royalties Co. 1 .... gas
Dee Belvin et al, Gulf Production Co. 1 dry
Miller, Bearman & Barbara Oil Co. 1. 7
Hart & Roth, Hart et al 2 ..... dry
Duff, Neiswanger et al 1 ..... dry
Graham, Speer, Malone et al 1 ..... dry
Gaines, Usonia Production Co. 1 ..... dry
Henningan, Chestnut & Smith & Owens 1 ..... dry
Capps, Natural Gas & Fuel Co. 3 5
Edmondson, Amerada Petroleum Corp. 1 dry
Williams, Anderson et al 1 ..... dry
Newton, Burris et al 8 48
Lewis-A, Hammon & Garrett 4 55
Butler, Texas Fidelity Oil Corp. 1 .... dry
Hill, Green ..... gas
Collier, Dr. Lloyd et al 7 7
Collier, Dr. Lloyd et al 8 35

Completions 32
Production 645
Gas production 5,000,000
Dry holes 15

CALLAHAN COUNTY
Williams, Dickey Oil Co. 3 ..... dry
Klutts, Prairie Oil & Gas Co. 1 3
Sealy, Swoveland et al 1 ..... dry
Pippin, Andrews Petroleum Co. 2 ..... dry
Ealy, Prairie Oil & Gas Co. 1 2
Head Brothers-B, Humble Oil & Refining Co. 1 ..... dry
W. Scale, Warren 1 ..... dry

Completions 7
Production 5
Dry holes 5

CLAY COUNTY
B. Landrum, Bain & Clark 1 17
B. Landrum, Bain & Clark 2 10
B. Landrum, Bain & Clark 3 ..... dry
B. Landrum, Bain & Clark 4 ..... dry
B. Landrum, Bain & Clark 5 3
B. Landrum, Bain & Clark 6 3
Worsham, Deep Rock Oil Co. 1 ..... dry

Completions 7
Production 33
Dry holes 3

COLEMAN COUNTY
Wheatley, Bradstreet et al 1 ..... dry

Overall, Continental Oil Co. et al 8 ... gas
Eddington, Illsing Production Co. 1 .. gas
J. P. Morris, Magnolia Petroleum Co. 21 dry
Crump, Charter Oil Co. 4 60
Jennings-C, Cunningham et al 7 25
Haywood, Sterling Oil & Gas Co. 1 ... gas
Stofford, Whitesides 2 ..... dry
Hefner, Gray 1 ..... dry
Holmes, Collins et al 1 ..... dry
Jennings, Derby Oil Co. 7 50
Neeb, Curry 1 ..... dry
Manes, Midsun Oil Corp. 1 ..... dry
Henderson, Owens 1 ..... dry
Gates, Apache Oil Co. 1 ..... dry
England, French 1 ..... dry
Smith, McCamey & Joines 1 ..... dry
Fletcher, Newsome et al 1 ..... dry
Strickland, Ross Drilling Co. 1 ..... dry
The Texas Co.-Hays, The Texas Co. 1.. 65

Completions 20
Production 200
Gas production 7,349,409
Dry holes 13

COMANCHE COUNTY

O'Rear, Anderson & Harst 1 ..... gas
Short, Frame 1 ..... dry

Completions 2
Gas production 1,500,000
Dry holes 1

COOKE COUNTY

J. Jones, W. B. Flesher et al 1 ..... dry
J. Dennis, Kewanee Oil & Gas Co. 2 ... 20
J. Dangelmeyer, Ruwaldt & Frost 1 ... dry
A. Johnson, Magnolia Petroleum Co. 1.. dry

Completions 4
Production 20
Dry holes 3

EASTLAND COUNTY

Earnest, Prairie O. & G. Co. 6 10
Holcomb, Price et al 1 ..... dry
N. Sneed, Republic Production Co. 4 ... 15
Brewer, Texas Pacific C. & O. Co. 19 .. 3
Shamburger, Jordon et al 1 ..... dry
Hightower, Panhandle Refining Co. 29. 5
Stewart, Texas Pacific C. & O. Co. 1 .. dry
Castleberry, Murray et al 1 ..... dry
Lyerla, Arkansas Fuel Oil Co. 6 7
Downain, Lewis et al 1 ..... dry
Hazzard, Schimmel Production Corp. 1 . dry
Rust, Arnold et al 1 75
Pinkston, Bryant 1 ..... dry
Jones, Hopkins et al 1 ..... gas
Coon, Barbin 2 12
Webb, Hoffman & Page 2 5
Scott, Teatsorth et al 11 8
Goode, Belva Oil Co. 4 550
Kleinecke, Cranfill & Reynolds 1 ..... dry

Completions 19
Production 690
Gas production 2,000,000
Dry holes 8

ERATH COUNTY

Davis, Peters et al 1 ..... gas

Gas production 10,000,000

FOARD COUNTY

Long, Panhandle Refining Co. et al 1.. dry

JACK COUNTY

T. N. Brown, Prairie O. & G. Co. and Amerada Petroleum Corp. 1 ..... dry
G. Keith, C. W. Bland et al 1 ..... dry
Keith, Panhandle Refining Co. 1 ..... dry
Kinder, Tarle, trustee, 1 ..... dry
First State Bank of Bryson, C. Lydecker et al 1 ..... dry
Moore, A. Lydecker et al 1 ..... dry
McKelvey, Panhandle Refining Co. 1 ... 190

Completions 7
Production 190
Dry holes 6

M'CULLOCH COUNTY

Shaffer, Jones Oil Syndicate 1 ..... dry
William Land, Dutton et al 1 ..... dry
Roberts, McLean & Jamison 1 ..... dry

Completions 3
Dry holes 3

MONTAGUE COUNTY

M. H. Salmon-D, Bridwell Oil Co. 5 ... 8
Jones-A, Continental Oil Co. 2 .... gas
Keck-A, Pure Oil Co. 7 8
Miller, Superior Oil Producing Co. 1 ... dry

Completions 4
Production 16
Gas production 4,800,000
Dry holes 1

PALO PINTO COUNTY

McDonald, Berry Bros. and McLester Oil Co. 1 ..... dry
Gilbert, Shaw 1 ..... dry

Completions 2
Dry holes 2

SHACKELFORD COUNTY

Flippin, Terry 1 ..... gas
W. I. Cook-C, Section 60, Roeser & Pendleton 42 ..... dry
W. I. Cook-C, Section 60, Roeser & Pendleton 41 80
W. I. Cook-C, Section 60, Roeser & Pendleton 39 35
Moberly, James 10 10
W. I. Cook-A, Section 60, Roeser & Pendleton 79 ..... dry
W. I. Cook-A, Section 61, Roeser & Pendleton 13 1
W. I. Cook-A, Section 61, Roeser & Pendleton 15 100
W. I. Cook-C, Section 60, Roeser & Pendleton 36 75
Reynolds, Texas Consolidated Oil Co. 1.. dry
Davis, Cranfill & Reynolds 1 ..... dry
W. I. Cook-C, Section 60, Roeser & Pendleton 35 50
W. I. Cook-C, Section 60, Roeser & Pendleton 38 50
Matthews, Tannehill Oil Co. 9 ..... dry
Matthews, Wentz Oil Corp. 1 40
Sedwick, The Texas Co. 3 ..... gas
Matthews, Wentz Oil Corp. 1 40
Ghio, Humble O. & R. Co. 1 ..... dry
Davis, Morton 1 ..... dry
Hill, O'Hara & Robinson 1 ..... dry
W. I. Cook-A, Section 60, Roeser & Pendleton 80 40
W. I. Cook-A, Section 61, Roeser & Pendleton 14 80
W. I. Cook-A, Section 61, Roeser & Pendleton 17 75
W. I. Cook-A, Section 83, Roeser & Pendleton 1 80
W. I. Cook-C, Section 60, Roeser & Pendleton 38 40
W. I. Cook-C, Section 60, Roeser & Pendleton 40 ..... gas
Matthews, Section 33, Tannehill et al 6.. 75
B. A. King, Zoch 1 40
Matthews, Atlantic Oil Prod. Co. et al 1 dry
J. H. Nail, George Callahan 5 11
Moore, Earl & Dull 1 ..... dry
Matthews-C, Harris et al 2 ..... dry
W. I. Cook-A, Section 60, Roeser & Pendleton 81 25
W. I. Cook-A, Section 61, Roeser & Pendleton 16 80
W. I. Cook-A, Section 61, Roeser & Pendleton 18 75
W. I. Cook-A, Section 140, Roeser & Pendleton 1 ..... dry

Completions 35
Production 1162
Gas production 4,800,000
Dry holes 12

STEPHENS COUNTY

Cunningham, Mid-Tex Oil Co. 5 30
Riddle, Brown 5 60
Rosenquest, McNallin & Griffin 1 28
Ackers-B, Prairie Oil & Gas Co. 5 10
Chesley, Corzelius Bros. & Taggart 1 .. dry
McWilliams, Beatty et al 1 ..... dry
Keathley, Glenridge Oil Corp. 1 ..... gas

Completions 7
Production 128
Gas production 3,800,000
Dry holes 2

THROCKMORTON COUNTY

Downing, Credicott & Baker 1 ..... dry
Walker, F. W. Holder 1 ..... dry
Titus, F. W. Holder 1 36
Latham, Humble O. & R. Co. 1 ..... dry

Completions 4
Production 36
Dry holes 3

SAN SABA COUNTY

Watkins, Wilmott 1 ..... dry

WICHITA COUNTY

Langford, R. R. Clark 3 115
Kemp & Kempner, Lot 4, Coleman & Coppock 6 ..... dry
Burnett et al, C. A. Everts 1 ..... dry
Waggoner Bros., H. Hines et al 7 ..... dry
Allen & Kemp, Block 28, Magnolia Petroleum Co. 1 17
W. N. Maer-A, Magnolia Petroleum Co. 4 5
J. R. Pace, Magnolia Petroleum Co. 3.. 55
M. P. Bishop, O'Donohoe & Gates 2 ... dry
Burnett et al, Panhandle & Hines 1 70
W. T. Waggoner, Pois & Kruger 12 22
Waggoner Bros., United Producers Co. 1 dry
Forbess-Burnett, Gulf Production Co. 22 dry
G. B. Ancell, Bass & Dillard 1 ..... dry
T. L. Burnett, Bridwell & Heydrick 1.. 53
McCarty-D, W. H. Hammon 4 150
McCarty, Hammon et al 8 75
McCarty, Hammon et al 9 75
McCarty-A, Hammon, Garrett & Thornberry 13 5
McCarty-A, Hammon, Garrett & Thornberry 14 5
S. Mitchell et al, Hammon & Garrett 4 dry
McCarty-Scott, Hammon, Heyser & Garrett 2 5
McCarty-Scott, Hammon, Heyser & Garrett 3 5
McCarty-Scott, Hammon, Heyser & Garrett 4 5
McCarty-Scott, Hammon, Heyser & Garrett 5 5
McCarty-Scott, Hammon, Heyser & Garrett 6 5
McCarty-Scott, Hammon, Heyser & Garrett 7 5
McCarty-Scott, Hammon, Heyser & Garrett 8 78
McCarty-Scott, Hammon, Heyser & Garrett 9 50
Waggoner Bros., H. Hines and Humble O. & R. Co. 8 ..... dry
Pace, Magnolia Petroleum Co. 4 10
Burnett et al, Panhandle & Hines 2 .. dry
William Thom, Bert Williams 11 20
Kemp & Kempner, Coleman & Coppock 16 60
S. E. McCarty, Hammon et al 10 40
McCarty-B, Hammon & Garrett 14 40
McCarty, Lease 3, Laning & Chenault 4 175
Pace, Magnolia Petroleum Co. 4 10
T. L. Burnett et al, W. M. Moore 1 ... dry
Waggoner Bros., Murchison & Cranfill 2 dry
J. R. Pace, W. B. Omohundro 16 31
Burnett et al, Panhandle & Hines 2 .... dry
G. L. Nance, Ryan Petroleum Corp. 98. dry
Kemp & Kempner, Staley & Wynne 3 .. 15
W. L. Hodges, United Producers Co. 1 .. 35
Ward & Todd, W. C. Witcher 1 124

Completions 45
Production 1365
Dry holes 14

WILBARGER COUNTY

W. T. Waggoner-B, Baker et al 5 315
W. T. Waggoner-C, Barkley & Meadows 5 68
W. T. Waggoner-A, Consolidated Oil Co. 12 35
W. T. Waggoner-S, Fain-McGaha Oil Corp. 13 900
W. T. Waggoner-W, Fain-McGaha Oil Corp. 1 35
W. T. Waggoner-H, Golding Cochran et al 1 ..... dry
W. T. Waggoner-A, Hamilton & Martin 5 218
W. T. Waggoner, Hampton & Wilson 2.. dry
W. T. Waggoner, Hawkins Hester et al 1 ..... dry
W. T. Waggoner-B, Lawson 6 20
W. T. Waggoner, Ramming & Saunders 1 ..... dry
W. T. Waggoner-E, The Texas Co. 13.. 753
W. T. Waggoner-B, Tower & McKanna 2 390
W. T. Waggoner-H, Waggoner Refining Co. 10 497
W. T. Waggoner-C, Barkley & Meadows 6 190
W. T. Waggoner-A, Consolidated Oil Co. 13 220
W. T. Waggoner-C, Consolidated Oil Co. 3 225
W. T. Waggoner-F, Consolidated Oil Co. 1 ..... dry
W. T. Waggoner-B, Cosden & Co. 26.. 475
W. T. Waggoner-B, Cosden & Co. 27.. 142
W. T. Waggoner-A, Derby Oil Co. 3 60
W. T. Waggoner-A, Derby Oil Co. 4 75
W. T. Waggoner-U, Fain-McGaha Oil Corp. 1 163
W. T. Waggoner, Lewis Production Co. 1 60
W. T. Waggoner-C, John O'Neil 1 ..... dry
W. T. Waggoner-OO, Phillips Petroleum Co. 4 50
W. T. Waggoner, Simms Petroleum Co. 6 135
W. T. Waggoner-E, The Texas Co. 12 .. 200
W. T. Waggoner-E, The Texas Co. 14 .. 270
W. T. Waggoner-B, Baker et al 6 105
W. T. Waggoner, Beasley et al 1 175
W. T. Waggoner-A, Consolidated Oil Co. 14 75
W. T. Waggoner-S, Fain-McGaha Oil Corp. 14 450
W. T. Waggoner-BB, Fain-McGaha Oil Corp. 1 ..... dry
W. T. Waggoner-A, Hamilton & Martin 6 146
Waggoner-Dorothy, Phillips Petroleum Co. 2 225
W. T. Waggoner-H, Waggoner Refining Co. 7 ..... dry
W. T. Waggoner-B, Consolidated Oil Co. 2 ..... dry
W. T. Waggoner-S, Fain-McGaha Oil Corp. 16 720
W. T. Waggoner-F, Golding-Cochran et al 1 ..... dry
W. T. Waggoner-C, Hamilton & Martin 1 ..... dry
W. T. Waggoner-Dorothy, Phillips Petroleum Co. 3 98
W. T. Waggoner, Simms Petroleum Co. 7 240
W. T. Waggoner, The Texas Co. 358 ... dry
W. T. Waggoner-E, The Texas Co. 15 .. 230
W. T. Waggoner-E, Waggoner Refining Co. 9 195

Completions 46
Production 8155
Dry holes 11

YOUNG COUNTY

V. Swain, Albright & Kerbow 1 ..... dry
J. H. Davis, Callender 1 ..... dry
J. H. Davis, Callender 2 ..... dry
Parrish, Cooper & Britton 1 46
C. W. Johnson, Hall et al 1 36
Marshall, Halsell 1 ..... dry
G. W. Johnson, Kennedy et al 1 ..... dry
J. E. Davis, Kleiner et al 4 131
Langston, Kleiner et al 25 40
J. H. Davis, Mook-Texas Oil Co. 8n ... 25
Willett, Panhandle Refining Co. 1 ..... dry
J. B. McKinley, Riggs et al 15 30
J. B. McKinley, Riggs et al 16 26
Garrett, Shappell Oil Co. 4 ..... dry
Garrett, Tidal Oil Co. 3 20
Lowe, Wolfe et al 5 ..... dry
Wilkerson, Amerada Petroleum Corp. 1 dry
Ford, Atkinson & Sandefer 4 ..... dry
Graham, Canyon Oil & Gas Co. 1 ..... dry
Sayers, Jacob Oil & Gas Co. 1 ..... dry
Allen, Paull Oil Co. 2 10
Morrison, Paull Oil Co. 3 ..... dry
Thompson, Paull Oil Co. 1 200
Thigpen, Pitzer & West 1 ..... dry
McBrayer, Creath & Kelli 1 ..... dry
Bryan, Four Oil Co. 1 10
C. W. Johnson, Kennedy et al 2 35
C. W. Johnson, Magnolia Petroleum Co. 2 19
Drum, Reed & Wooten et al 1 ..... dry
J. B. McKinley, Riggs et al 17 ..... dry
Leberman, Stafford et al 1 ..... dry
Dent, Stivers & Streeter 1 ..... dry
Campbell, Underwood Drilling Co. 1 ... dry
Weems, Walton et al 1 ..... dry
Lowe, Wolfe et al 4 ..... dry
Thompson, Schermerhorn Oil Co. 3 100
Jordan, Albright & Kerbow 1 ..... dry
R. Campbell-E, Gulf Production Co. 1 .. dry
C. W. Johnson-C, Allday Oil Corp. 1 .. 12
Knox, Crozton-Bucklin Oil Co. 1 ..... dry
Pringle, Four Oil Co. 1 ..... dry
Edwards, C. W. Gilliland 1 ..... dry
Kunkel, F. G. Wynn 3 100
J. H. Davis, Kleiner et al 5 60
C. W. Langston, Kleiner et al 26 100
J. H. Davis, Mook-Texas Oil Co. 9 ..... dry
Rowley, Morrison & Smith 1 ..... dry
C. W. Johnson-C, Pennell Oil Co. 6 5
Parrish-A, Petroleum Producers Co. 2. 20
D. Garrett, Shappell Oil Co. 5 11
Benson, Whatley et al 1 ..... dry
C. W. Johnson-C, Allday & Carter 2 .... dry
J. B. McKinley, Allday & Carter 9 .... dry
Allen, Harrison & Whitaker 1 ..... dry
C. W. Johnson, Kennedy et al 3 18
C. W. Johnson, Lynch & Whitehill 1 ... 10
C. W. Johnson, Magnolia Petroleum Co. 3 17
Swain, Pettitt 1 ..... dry
Hamilton, Ramming & Petty et al 1 .. dry
J. B. McKinley, Riggs et al 18 10
Drum, Stafford et al 1 ..... dry
Lowe, Wolfe 6 ..... dry

Completions 62
Production 1091
Dry holes 37

WEST TEXAS
WELLS COMPLETED

ANDREWS COUNTY

W. J. Harris, Deep Rock Oil Co. 1 .... dry

CRANE COUNTY

J. T. McElroy, Gulf Prod. Co. 54 360
University, T. P. Coal & Oil Co. 1 110

Completions 2
Production 460

CROCKETT COUNTY

University, Renee Oil Co. 1 ..... dry
J. M. Shannon, Young & Donnelly 2 .... dry

Completions 3
Dry holes 2

FISHER COUNTY

B. F. Willingham, Cranfill & Reynolds 1 258

GLASSCOCK COUNTY

L. S. McDowell, Meriwether Oil Co. 1 .. dry

HOWARD COUNTY

G. C. Stewart, Amerada Pet. Corp. 1 .. dry
Dora Roberts, Laurel-Cosden & Co. 7 .. 400
Dora Roberts, Magnolia Pet. Co. 4 812
Dora Roberts, Magnolia Pet. Co. 8 1485
Otis Chalk, Gulf Prod. Co. 5 30
A. J. Hooks, Bristow & Merrick 8 125
H. R. Clay, Merrick & Lamb 5 130
Dora Roberts, Coyle-Concord Oil Co. 1-A 1604
A. J. Hooks, Godley Oil Co. 7 125
C. D. Read, Hicks et al 1 ..... dry
Dora Roberts, Laurel-Cosden & Co. 5 ..1963
Dora Roberts, Magnolia Pet. Co. 9 1695
H. R. Clay-A, Marland Prod. Co. 8 61
H. R. Clay-F, Marland Prod. Co. 2 88
Dora Roberts-A, Cosden & Co. 2 340
Dora Roberts-B, F. H. E. Oil Co. et al 3 514
Dora Roberts-B, F. H. E. Oil Co. et al 6 450
H. R. Clay, Green Oil & Ref. Co. 3 75
H. R. Clay-E, Marland Prod. Co. 2 84

Completions 19
Production 9981
Dry holes 2

IRION COUNTY

J. T. Thomson, H. H. Adams et al 1 ... dry

JONES COUNTY

J. C. Mason, Marland Prod. Co. 4 156
W. L. Gunther, Hurley Oil Co. 1 ..... dry
S. R. Cow, Pandem Oil Corp. 1 ..... dry
J. H. Grayson, Robert Oil Corp. 6 ..... dry
S. A. Higgs-B, Roeser & Pendleton & Landreth Prod. Corp. 1 32
J. F. Saunders, Hines et al 1 ..... dry

Completions 6
Production 188
Dry holes 4

MARTIN COUNTY

C. C. Slaughter, Phillips Petroleum Co. 1 dry

MITCHELL COUNTY

G. M. Brown-A, Owen & Sloan 1 ..... dry

PECOS COUNTY

I. G. Yates, Lease 1, The California Co. 17 7704
I. G. Yates, Lease 1, The California Co. 18 59,328
I. G. Yates-H, Mid-Kansas O. & G. Co. 25,968
El Paso Cattle Loan Co., Phillips Pet. Co. 1 ..... dry
M. A. Smith, Red Bank Oil Co. 4 384
M. Johnson et al, Amerada Pet. Corp. 1 dry
M. A. Smith, Cosby Drilling Co. 1 1968
Holmes, Bob Elmore 2 ..... dry
J. H. Tippett, McMan Oil & Gas Co. 3.. 220
M. A. Smith-D, Roxana Pet. Corp. 2 .. 960
J. H. Tippett, Roxana Pet. Corp. 10 ..8760
M. A. Smith, Simms Pet. Co. 3 35,328
M. A. Smith, Lease 1, The California Co. 2 1920
R. W. Arnold et al, Paul Whomlick et al 1 ..... dry

Completions 13
Production 142,540
Dry holes 4

REAGAN COUNTY

University, Big Lake Oil Co. 146 475
University, Big Lake Oil Co. 147 240
University, Big Lake Oil Co. 149 100

Completions 3
Production 815

REEVES COUNTY

Bell, McRobie et al 1 ..... dry

RUNNELS COUNTY

Giesecke, Pure Oil Co. 1 ..... dry

UPTON COUNTY

Union Land Co., Cordova Union Oil Corp. 1 ..... dry

WINKLER COUNTY

Ida Hendricks-B, Independent Oil & Gas Co. 2 300
Grisham-Hunter-B, Independent Oil & Gas Co. 7-A-2 1200
Grisham-Hunter, Pure Oil Co. 11 1483
Ida Hendricks-C, Republic Prod. Co. 4.. 200
Grisham-Hunter, Roxana and The Texas Company 4 35
Ida Hendricks-A, Roxana and The Texas Company 9-A 4464
Grisham-Hunter-A, Texon O. & L. Co. 5 22
Grisham-Hunter, Eastland Oil Co. et al 1-A 500
Grisham-Hunter, Humble O. & R. Co. 16 28,800
T. G. Hendricks-B, Humble O. & R. Co. 5 1591
T. G. Hendricks-B, Humble O. & R. Co. 6 .....j'k'd
T. G. Hendricks-G, Roxana Pet. Corp. 1 194
T. G. Hendricks-E, Roxana Pet. Corp. and The Texas Co. 3 14,400
Grisham-Hunter, T-89-B, Southern Crude Oil Pur. Co. 1 800
Ida Hendricks, T-88-J, Southern Crude Oil Pur. Co. 2 5040
Ida Hendricks, T-88-J, Southern Crude Oil Pur. Co. 3 .....j'k'd
T. G. Hendricks, T-88-M, Southern Crude Oil Pur. Co. 10 2000
T. G. Hendricks, T-88-M, Southern Crude Oil Pur. Co. 23 2640
T. G. Hendricks, T-88-P, Southern Crude Oil Pur. Co. 1 360
T. G. Hendricks, T-88-U, Southern Crude Oil Pur. Co. 4 2472
Grisham-Hunter-B, Texon O. & L. Co. 5 324
T. G. Hendricks, Tr.-A, Gulf Prod. Co. 26 11,421
T. G. Hendricks, Tr.-C, Gulf Prod. Co. 27 4068
T. G. Hendricks, Tr.-B, Gulf Prod. Co. 30 49,440
T. G. Hendricks, Tr.-C, Gulf Prod. Co. 16 34,016
T. G. Hendricks, Tr.-C, Gulf Prod. Co. 24 450
T. G. Hendricks-E, Cranfill & Reynolds 1 5000
Ida Hendricks, El Paso Prod. Co. 1 5000
T. G. Hendricks, Prairie O. & G. Co. 5.. 148
Grisham-Hunter, T-89-B, Southern Crude Oil Pur. Co. 2 300
T. G. Hendricks, T-88-S, Southern Crude Oil Pur. Co. 1 3840
Lum Daugherty, T. P. Coal & Oil Co. 1 dry
T. G. Hendricks, Tr.-B, Gulf Prod. Co. 28 36,696
Grisham-Hunter, Humble O. & R. Co. 16 8000
T. G. Hendricks, Mining & Engineering Corp. 1 2662
Grisham-Hunter, Pure Oil Co. 8 1900
Grisham-Hunter-C, Pure Oil Co. 6 31,544
Grisham-Hunter-D, Roxana Pet. Corp. 5 2889
T. G. Hendricks-B, Skelly Oil Co. 1 .. 8
Grisham-Hunter, T-89-F, Southern Crude Pur. Co. 1 300
Ida Hendricks, 3-T-67-A, Southern Crude Oil Pur. Co. 5 720
T. G. Hendricks, T-88-M, Southern Crude Oil Pur. Co. 17 12,000
T. G. Hendricks, T-67-3-B, Southern Crude Oil Pur. Co. 3-A 48
Grisham-Hunter-A, Texon O. & L. Co. 3 30
Grisham-Hunter-A, Texon O. & L. Co. 4 100

Completions 45
Production 277,426
Dry holes 3

SOUTHWEST TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
ando	32	4,548	5	6	14	35	49
ng	6	117	0	0	0	5	5
e	4	175	0	0	0	0	0
Bruner	3	720	1	0	1	15	16
ana-Larre-							
ore	3	177	0	0	1	0	1
erset	18	159	0	0	0	1	1
gio	6	10	0	6	5	4	9
ellaneous	17	23	14	2	24	78	102
tal Oct.	89	5,929	20	14	45	138	183
tal Sept.	74	6,406	22	15	33	145	178
fference	15	477	2	1	12	7	5

WELLS COMPLETED

SCHOOLFIELD-O'BYRNE—DUVAL

Schoolfield-O'Byrne-Pearson 1 40

SIMMS FIELD

Rio Grande Dev. Co. 1 ..... gas

HUMBLE-REITER-FOSTER

Humble O. & R. 9 ..... gas

RANDADO FIELD—JIM HOGG

Magnolia Pet. 21 10

ALBERCAS FIELD—WEBB

E. R. Jewell 3 ..... abd
Wade Oil Corp. 2 ..... gas
Gulf Oil Co. 5-A 150
Gulf Oil Co. 3-B 500
Gulf Oil Co. 3-A 900
Gulf Oil Co. 4-A 100
Gulf Oil Co. 6-A 150
Magnolia Pet. 7 ..... abd
Magnolia Pet. 10 800
Magnolia Pet. 12 400
W. Killam 23 100
W. Killam 24 100
Wade Oil Corp. 1 155

MAGNOLIA-COLE POOL

Houston Oil 1-F ..... gas
Houston Oil 3-F 100
Houston Oil 5-D 100
Houston Oil 13-D 120
Houston Oil 14-D 108
Houston Oil 16-D 150
Houston Oil 18-D ..... abd
Magnolia Pet. 7 65
Magnolia Pet. 11 300

WILDCATS

Brigham Land & Pastoral 2 ..... abd

JENNINGS FIELD—ZAPATA

W. Killam 2 ..... gas
W. Killam 3 150
W. Killam 4 150

CHARCO REDONDO

R. Duke 1-B ..... gas

WILDCATS

V. Hill 2 ..... abd

Wells completed 32
Oil wells completed 21
Gas wells completed 6
Dry and abandoned 5
Total oil production, initial 4548
Total gas production, initial 126,000,000

LULING FIELD

Magnolia Pet. 22 30
Magnolia Pet. 4 20
Magnolia Pet. 1 17
Magnolia Pet. 9 20
Magnolia Pet. 1-B 20
Magnolia Pet. 21 10

Wells completed 6
Oil wells completed 6
Total oil production 117

JOE BRUNER FIELD

Gulf Oil Co. 1 690
J. Hadley 1 30
Texas Oil 1 ..... abd

Wells completed 3
Oil wells completed 2
Dry and abandoned 1
Total oil production 720

DALE FIELD

Texas Company 3 45
Texas Company 4 20
Texas Company 5 10
Adams et al 3 100

Wells completed 4
Oil wells completed 4
Total oil production 175

ROXANA-LARREMORE POOL

Magnolia Pet. 1-B 117
Magnolia Pet. 3 40
Magnolia Pet. 4 20
Magnolia Pet. 5 ..... abd

Wells completed 3
Oil wells completed 3
Total oil production 177

SOMERSET FIELD

Sommel Prod. 2 9
Sommel Prod. 3 11
Sommel Prod. 4 12
Sommel Prod. 5 10
Sommel Prod. 6 8
Sommel Prod. 7 10
Sommel Prod. 8 10
Sommel Prod. 9 8
Sommel Prod. 10 5
Sommel Prod. 11 10
Sommel Prod. 12 10
Sommel Prod. 13 8
Sommel Prod. 14 8
Sommel Prod. 23 11
Sommel Prod. 25 8
Sommel Prod. 26 10
Sommel Prod. 27 6
Sommel Prod. 28 5

Wells completed 18
Oil wells completed 18
Total oil production 159

ADAMS FIELD

Southern Gas Utilities 21 ..... gas

REFUGIO FIELD

Pet Gas 4 ..... gas
Houston Gulf Gas 3 ..... gas
Houston Gulf Gas 2-A ..... gas
Houston Oil 8 ..... gas
Houston Oil 4 ..... gas
Houston Oil 2 ..... gas

Wells completed 6
Gas wells completed 6
Total gas production 375,000,000
Oil production 10

Drilling about 10 bbls. oil.

MISCELLANEOUS

Nueces County—
Gas & Landua, Rundus 1 ..... abd
Miller Drlg., Jones 1 ..... abd
Oil, Keicke 1 ..... abd
Nueces County—
Houston Oil, Georgiadis 1 ..... abd

Caldwell County—
Detex Oil, Hardeman 1 ..... abd
Cranfill & Reynolds-Sun, Cardwell 1.. 23
Louis P. Schawe, Schawe 2 ..... abd
Edwards County—
Magnolia Pet., Whitehead 2 ..... abd
Gonzales County—
Alexander & Smith, Billings 1 ..... abd
The Texas Co., Bateman 1 ..... abd
Guadalupe County—
Towns & Porter, McKinney 1 ..... abd
Atlantic Prod., Flemming 1 ..... abd
Live Oak County—
J. A. Harper, Three Rivers 3 ..... abd
J. A. Harper, Wm. Harris 1 ..... gas
Maverick County—
Ryan Consolidated, Indio 1 ..... abd
Medina County—
Tarver and associates, Adams 1 ..... abd
Zavala County—
Tritex Oil, West 3 ..... gas

Wells completed 17
Oil wells completed 1
Gas wells completed 2
Dry and abandoned 14
Oil production 23
Gas production 19,000,000

LOUISIANA-ARKANSAS

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas*	Rigs	Drg.	Ttl.
Bienville	0	0	0	0	3	3	
Bossier	9	0	5	4	3	6	9
Caddo	4	20	2	1	0	18	18
Catahoula	0	0	0	0	0	2	2
Claiborne	0	0	0	0	0	4	4
DeSoto	2	0	1	1	3	4	7
East Carroll	0	0	0	0	0	2	2
Franklin	9	0	0	0	0	1	1
Grant	1	0	1	0	1	0	1
LaSalle	0	0	0	0	1	2	3
Madison	0	0	0	0	0	2	2
Morehouse	9	0	4	5	2	5	7
Ouachita	0	0	0	0	4	8	12
Rapides	0	0	0	0	0	2	2
Red River	1	0	1	0	1	1	2
Richland	4	0	0	4	4	4	8
Sabine	1	0	1	0	1	2	3
Tensas	0	0	0	0	0	1	1
Union	2	0	1	1	3	6	9
Webster	8	30	4	3	6	12	18
Total Oct.	41	50	20	19	29	85	114
Total Sept.	30	380	23	12	34	82	116
Difference	11	330	3	7	5	3	2

*Gas production, in cubic feet: Bossier, 46,500,000; Caddo, 100,000; DeSoto, 500,000; Morehouse, 65,700,000; Richland, 162,000,000; Union, 12,000,000; Webster, 47,080,000; total, cubic feet, 333,880,000.

ARKANSAS

Summary of Field Operations

	Comp.	Prod.	Dry	*Gas	Rigs	Dlg.	Ttl.
Ashley	0	0	0	0	3	3	
Calhoun	1	0	1	0	0	1	1
Chicot	1	0	1	0	0	4	4
Cleveland	1	0	1	0	0	0	0
Clark	0	0	0	0	0	2	2
Clay	0	0	0	0	0	1	1
Columbia	0	0	0	0	1	3	4
Faulkner	0	0	0	0	0	1	1
Franklin	0	0	0	0	0	1	1
Garland	0	0	0	0	0	1	1
Jackson	0	0	0	0	0	1	1
Johnson	3	0	0	3	0	2	2
Little River	0	0	0	0	0	1	1
Logan	0	0	0	0	0	2	2
Nevada	5	266	0	0	1	2	3
Ouachita	0	0	0	0	0	3	3
Pike	2	0	2	0	0	0	0
Union	30	2,507	17	4	18	27	45
Washington	0	0	0	0	0	2	2
White	0	0	0	0	0	1	1
Woodruff	0	0	0	0	0	1	1
Total Oct.	43	2,773	22	7	20	59	79
Total Sept.	36	1,474	16	4	27	73	100
Difference	7	1,299	6	3	7	14	21

Gas production in cubic feet: Johnson, 18,328,000; Union, 99,400,000; Total cubic feet 117,728,000.

NORTH LOUISIANA
WELLS COMPLETED
BOSSIER PARISH

31-16-11 Van Hoose, Arkansas Natural Gas Corp. 6-A ..... gas
31-16-11 Van Hoose, Arkansas Natural Gas Corp. 7-A ..... gas
10-23-13 Hamiter, Hamiter et al 1 ..... dry
31-16-11 Meyer, C. W. Jones 1 ..... dry
31-23-11 Robards, Magnolia Pet. Co. 1 (loc.) ..... abd
26-16-12 Caplis, Palmer Corp. 11 ..... gas
25-16-12 Caplis, R. O. Root 1 ..... dry
23-17-12 Webb, Sligo Syndicate 2 ..... gas
32-19-11 N. E. and E. A. McDade, C. L. Williams 1 ..... dry

Wells completed 9
Dry 5
Gas 4
Gas production 46,500,000

CADDO PARISH

24-22-15 Hoss, Bayou State Oil Co. 33.. 20
1-20-16 Church, J. W. Burton 1 ..... gas
8-19-16 Louisiana Livestock Co., Haynes Brothers 4 ..... dry
26-15-15 Berry, Warren & Carruthers 1 dry

Wells completed 4
Production 20
Gas 1
Gas production 100,000
Dry 2

DESOTO PARISH

14-12-12 Rives, Louisiana Public Utilities Co. 1 ..... gas
6-12-11 Nabors, Rudesaele et al 1 .... dry

Gas production 500,000

GRANT PARISH

17-9-1e Swope, Bailey & Bevil 3 ..... dry

MOREHOUSE PARISH

14-20-4 Perry, Consolidated Carbon Co. 2 ..... gas
16-18-6 School Board, Gulf Ref. Co. 1.. dry
36-20-4 Millsaps, Magnolia Pet. Co. 2.. gas
21-19-4 McEnery, Natural G. & F. Corp. 1 ..... gas
22-22-4 Tensas, Natural G. P. Co. 11.. gas
11-22-8 Louisville Cooperage Co., Schaffer Oil & Ref. Co. 1 ..... dry
10-20-4 Tensas, Southern Carbon Co. 6 gas
18-21-6 Bastrop Paper Co., United Carbon Co. 1 ..... dry
3-22-9 Bonita Lumber Co., Woodley Pet. Co. 1 ..... dry

Wells completed 9
Gas 5
Dry 4
Gas production 65,700,000

RED RIVER PARISH

28-12-10 Schapari, Red River Oil Co. 1 (drk.) ..... abd

RICHLAND PARISH

21-16-6 McCoy, S. D. Hunter 3-B ..... gas
16-16-6 J. Sartor, Magnolia Pet. Co. 1.. gas
25-16-6 Godfrey, Richland Operating Co. 1 ..... gas
24-16-5 Rhymes, Richland Operating Co. 1 ..... gas

Wells completed 4
Gas 4
Gas production 162,000,000

SABINE PARISH

23-10-12 Logan, Plymouth Oil Co. 2-A dry

UNION PARISH

7-23-1e Clark, Carter & Wingfield 1-A (loc.) ..... abd
16-20-4 Steele, Feazel & Smith 1 .... gas

Gas production 12,000,000

WEBSTER PARISH

32-23- 9 Elkins, Virgil Helm 1 (loc.).. abd
14-21-10 Bodcaw, Humble O. & R. Co. 2-A ..... dry
14-21-10 S. J. Merritt, Magnolia Pet. Co. 5 30
29-23- 9 R. J. Munn, Magnolia Pet. Co. 2 ..... gas
21-21-10 B. M. Turner, Magnolia Pet. Co. 1 (loc.) ..... abd
23-21-10 R. L. Holloway, Ohio Oil Co. 5 gas
28-21-10 Tillman, Palmer Corp. 3 ..... gas
30-23- 9 Mayfield, Bruce Richardson 1 dry

Wells completed 8
Production 30
Gas 3
Gas production 47,080,000

ARKANSAS

CALHOUN COUNTY

29-16-12 Arkansas Lumber Co., Phillips Pet. Co. 1 (loc.) ..... abd

CLEVELAND COUNTY

4-9-11 Tate, Arkansas Natural Gas Corp. 1 ..... dry

CHICOT COUNTY

23-17-2w J. T. Hammond, Jr., The Texas Company 1 ..... dry

JOHNSON COUNTY

13-10-24 J. I. Bynum, Arkansas Natural Gas Corp. 1 ..... gas
14-10-24 O. L. Hudson, Arkansas Natural Gas Corp. 1 ..... gas
16-10-24 Kerwin, Arkansas Natural Gas Corp. 1 ..... gas

Gas production 18,328,000

NEVADA COUNTY

6-14-20 Wm. Haynie, Autrey Oil Co. and Dixie Oil Co. 1 100
1-14-21 Groves, Humble O. & R. Co. 5-A 45
1-14-21 Groves, Humble O. & R. Co. 6-A 45
1-14-21 Groves, Humble O. & R. Co. 6-B 31
1-14-21 Groves, Humble O. & R. Co. 6-C 45

Wells completed 5
Production 266

PIKE COUNTY

25-5-25 Ruth Wilson, Burns & Oldenberg 1 ..... dry
10-8-23 Kelly, Carnes, Guenther & Keith 1 ..... dry

UNION COUNTY

14-17-14 Rowland, O. W. Estes 5 ..... dry
14-17-14 Rowland, O. W. Estes 6 ..... gas
21-18-12 Dykes, H. L. Hunt 1 ..... dry
15-17-14 J. D. Gregory, H. L. Hunt 9.. gas
10-17-14 E. P. Gregory, E. C. Johnson, trustee 2 20
10-18-14 Stegall, E. M. Jones 2-B ..... dry
6-17-13 Nash, Lion Oil Ref. Co. 1 .. 700
1-17-14 Carroll, Magnolia Pet. Co. 6.. 35
1-17-14 Carroll, Magnolia Pet. Co. 2.. 110
1-17-14 Carroll, Magnolia Pet. Co. 5.. 35
11-17-14 G. C. Dumas, Magnolia Pet. Co. 1 36
7-17-13 Sample, Marine Oil Co. 1 1000
14-17-15 Sloan, Joe Marr 1 ..... dry
28-17-14 Peters, Mellor, trustee 1 (loc.) abd
6-17-13 Union Sawmill, C. E. Murdock 1 300
1-17-14 W. R. Crain, Ohio Oil Co. 8 .. 300
6-17-13 Nash, Ohio Oil Co. 1 636
10-17-14 Townsend, Ohio Oil Co. 1 .... dry
9-17-14 Kelly, Oilwell Corp. 1-A ..... gas
13-17-14 P. W. Gaddy, Pure Oil Co. 1.. dry
11-17-14 E. F. Gregory, Pure Oil Co. 8 (loc.) ..... abd
11-17-14 J. M. Gregory, Pure Oil Co. 5 (loc.) ..... abd
14-19-11 Union Sawmill, Rhodes et al 1 dry
21-17-14 Davidson, Root Refineries, Inc. 1 (loc.) ..... abd
16-17-14 Ed Doss, Root Refineries, Inc. (loc.) ..... abd
110-17-14 E. F. Gregory, Root Refineries, Inc. 2 ..... dry
16-17-14 Doss, Roxana Petroleum Co. 1 (loc.) ..... abd
12-17-14 Finley, Simerall et al 1 ..... dry
16-17-14 Moody, The Texas Company 1 (loc.) ..... abd
25-17-14 Wilson, Walber et al 1 .... dry

Wells completed 30
Production 2507
Gas 4
Dry 17
Gas production 99,400,000

GULF COAST FIELDS

Summary of Field Operations for October

Texas

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Barbers Hill	1	0	1	0	1	3	4
Batson	4	54	0	0	0	4	4
Big Creek	1	0	1	0	0	4	4
Blue Ridge	11	5,345	3	0	2	6	8
Boling	5	400	4	0	2	6	8
Damon Mound	1	400	0	0	1	0	1
DeWalt	2	4,000	1	0	1	3	4
High Island	2	10	1	0	0	2	2
Hull	4	2,825	0	0	0	6	6
Humble	1	325	0	0	0	6	6
Liberty	3	1,255	0	0	0	4	4
Markham	0	0	0	0	0	1	1
Nash	2	0	2	0	0	3	3
Orchard	0	0	0	0	0	3	3
Orange	4	180	2	0	0	5	5
Pierce Junction	6	4,150	2	0	1	9	10
Raccoon Bend	1	0	1	0	3	4	7
Saratoga	2	8	1	0	0	4	4
Sour Lake	2	64	1	0	1	1	2
Spindletop	10	4,165	2	0	2	19	21
West Columbia	0	0	0	0	0	1	1
Miscellaneous	10	150	9	0	3	28	31
Total Oct.	72	23,331	31	0	17	122	139
Total Sept.	82	30,163	30	1	11	143	154
Difference	10	6,832	1	1	6	21	15

Louisiana

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Atchafalaya	0	0	0	0	0	4	4
Anse La Butte	0	0	0	0	0	1	1
Edgerly	2	25	1	0	0	2	2
Hackberry	5	1,990	3	0	1	2	3
Jennings	3	105	1	0	1	10	11
Lockport	3	100	1	0	0	4	4
Starks	0	0	0	0	0	3	3
Sorrento	0	0	0	0	0	1	1
Sulphur	1	0	1	0	1	6	7
Sweet Lake	0	0	0	0	0	1	1
Vinton	2	10	1	0	1	6	7
Miscellaneous	4	0	4	0	4	16	20
Total Oct.	20	2,230	12	0	8	56	64
Total Sept.	38	5,718	30	0	9	46	55
Difference	18	3,488	18	0	1	10	9
Total Gulf Coast Oct.	92	25,561	43	0	25	178	203
Total Sept.	120	35,881	79	1	20	189	209
Difference	28	10,320	36	1	5	11	6

WELLS COMPLETED
TEXAS

BARBERS HILL—CHAMBERS COUNTY

Smith, Bennett Pet. Co. 1 ..... abd

BATSON—HARDIN COUNTY

Honeymoon, Ada Belle Oil Co. 123 ... 5
Trustee, Deutser Oil Co. 16 24
Knight fee, Gulf Prod. Co. 19 20
Paraffine, Paraffine Oil Co. 77 5

Wells completed 4
Production 54
Abandoned 0

BIG CREEK—FORT BEND COUNTY

Davis, Gulf Prod. Co. 48 ..... abd

BLUE RIDGE—FORT BEND COUNTY

Overly, Golding et al 4 75
Blakely, Golding et al 3 1000
Trustee, H. B. Gordon, Jr. 3 20
West-Schenck, Humphreys Corp. 4 1200
Robinson, Moody Corp. 1 ..... abd
Robinson, Navarro Oil Co. 1-A ..... abd
Scott, E. F. Simms 1 2500
Gabe Lee, South Texas Prod. Co. 2 200
Blakely, South Texas Prod. Co. 3 ..... abd
Davidson, South Texas Prod. Co. 1 50
Blakely, Telly Oil Co. 1 300

Wells completed 11
Production 5345
Abandoned 3

BOLING—WHARTON COUNTY

Plumb, Miller et al 1 ..... abd
J. R. Farmer, Sun Oil Co. 8 ..... abd
Bushnell, The Texas Co. 1 400
H. R. Farmer, Texas Gulf Sulphur Co. 6 abd
Taylor, Vacuum Oil Co. 1 ..... abd

Wells completed 5
Production 400
Abandoned 4

DAMON MOUND—BRAZORIA COUNTY

Norton, Sinclair O. & G. Co. 4 400

DEWALT—FORT BEND COUNTY

Sugarland, Humble O. & R. Co. 3 3000
Deatherage, Humble O. & R. Co. 1.. abd
Camp, Humble O. & R. Co. 1 1000

Wells completed 2
Production 4000
Abandoned 1

HIGH ISLAND—GALVESTON COUNTY

Geo. E. Smith, Gulf Prod. Co. 7 10
Cade, McLean Oil Co. 14 ..... abd

Wells completed 2
Production 10
Abandoned 1

HULL—LIBERTY COUNTY

Phoenix, Gulf Prod. Co. 16 175
Morris Phillips, Gulf Prod. Co. 24 600
Guedry, Humble O. & R. Co. 8 50
Dolbear, Republic Prod. Co. 40 1000

Wells completed 4
Production 1825
Abandoned 0

HUMBLE—HARRIS COUNTY

Koehler, The Texas Co. 22 325

LIBERTY—LIBERTY COUNTY

Turner, Liberty Pet. Co. 2 200
Mitchell, Sun Oil Co. 8 725
Mitchell, Yount Lee Oil Co. 10 30

Wells completed 3
Production 955
Abandoned 0

NASH—FORT BEND COUNTY

Julius Meier, Rycade Oil Corp. 6 ..... abd
Nash, Rycade Oil Corp. 14 ..... abd

Wells completed 2
Abandoned 2

ORANGE—ORANGE COUNTY

Chessom, Humble O. & R. Co. 11 155
Berwick, Orange Pet. Co. 2 30
Gunstream, Sun Oil Co. 4 ..... abd
Gunstream, Sun Oil Co. 5 ..... abd

Wells completed 4
Production 180
Abandoned 2

PIERCE JUNCTION—HARRIS COUNTY

Whitehead, Anderson & Plummer 4 1000
Higgins, Joe Bashara 1 ..... abd
Whitehead, Albert Plummer 1 ..... abd
Settegast, Rio Bravo Oil Co. 9-A 2000
B. Settegast, Rio Bravo Oil Co. 7 400
Fitzsimmons, Shaw et al 3 750

Wells completed 6
Production 4150
Abandoned 2

RACCOON BEND—AUSTIN COUNTY

Kearns, Humble O. & R. Co. 1 ..... abd

SARATOGA—HARDIN COUNTY

Jordit, Rio Bravo Oil Co. 85 ..... abd
B. B. B. & C., Weldon Oil Co. 1 8

Wells completed 2
Production 8
Abandoned 1

SOUR LAKE—HARDIN COUNTY
Fee, The Texas Co. 277 64
Brown, United O. & F. Co. 1 ..... abd

Wells completed 2
Production 64
Abandoned 1

SPINDLETOP—JEFFERSON COUNTY
Gladys, Gulf Prod. Co. 224 ..... abd
Rusk, L. A. Painter Co. 1 ..... abd
Gladys City, The Texas Co. 1 150
McFaddin, Unity Oil Co. 97 75
McFaddin, Yount Lee Oil Co. 25 400
McFaddin, Yount Lee Oil Co. 69 1000
McFaddin, Yount Lee Oil Co. 81 1070
Gladys City, Yount Lee Oil Co. 72 750
Davis, Yount Lee Oil Co. 2 220
Fee, Yount Lee Oil Co. 10 500

Wells completed 10
Production 4165
Abandoned 2

MISCELLANEOUS TEXAS
Austin County—
Ward, Weadock et al 1 ..... abd
Brazoria County—
Stratton Ridge, Perry, Dan Harrison Oil Co. 1 ..... abd
Chambers County—
Lost Lake, Old River Lake, Pure Oil 1 abd
Colorado County—
Swank, U. S. Oil Co. 1 ..... abd
Fort Bend County—
Long Point, Wolf, Gulf Prod. Co. 11 ... abd
Harris County—
Grouse 5 acres, J. A. Hautier et al 1 ... abd
Hockley, Warren, Humble O. & R. 4 .. abd
Jasper County—
Boykin, Great Lakes O. & G. Synd. 2 .. abd
Jefferson County—
Oswald, Oswald Dome Synd. 2 ..... abd
Washington County—
Sommerville, Grote, Sun Oil Co. 1 150

Wells completed 10
Production 150
Abandoned 9

LOUISIANA
WELLS COMPLETED
EDGERLY—CALCASIEU PARISH
Moore, Green Oil Co. 9 ..... abd
Wilson, Wilson-Brach 2 25

Wells completed 2
Production 25
Abandoned 1

HACKBERRY—CAMERON PARISH
Valery, Calcasieu Oil Co. 3 1200
Dorion, Calcasieu Oil Co. 4 790
Deuhon, Cameron Oil Co. (Jim Sutton et al) 1 ..... abd
Kelso Bayou, Yount Lee Oil Co. 17 ..... abd
Kelso Bayou, Yount Lee Oil Co. 18 ..... abd

Wells completed 5
Production 1990
Abandoned 3

LOCKPORT—CALCASIEU PARISH
Miller, Vacuum Oil Co.-Gulf Ref. Co. 7 50
Freiher & Wolf, Vacuum and Gulf 3 .. abd
Henshaw Lemoin, Vacuum and Gulf 1 .. 50

Wells completed 3
Production 100
Abandoned 1

JENNINGS—ACADIA PARISH
Fee, Abshire-Bolyard Oil Co. 4 ..... abd
Martin, Ratcliff Oil Co. 11 100
Latrielle, The Texas Co. 5-B 5

Wells completed 3
Production 105
Abandoned 1

SULPHUR DOME—CALCASIEU PARISH
Hunter, Watson et al 1 ..... abd

VINTON—CALCASIEU PARISH
Star-Vincent, Gulf Ref. Co. 45 ..... abd
Green Sanbord, L. Siess Oil Corp.-Synd. 10 10

Wells completed 2
Production 10
Abandoned 1

MISCELLANEOUS LOUISIANA
Ascension Parish—
Liotta, Baton Rouge Pet. Co. 1 ..... abd
LaFourche Parish—
Thibodaux, Stark, Gulf Ref. Co. 6 .... abd
Vermillion Parish—
Marceaux, Paul Bryant 1 ..... abd
West Baton Rouge Parish—
Wilbert, Grosse Tate O. & G. Co. 1 .... abd

Wells completed 4
Production 0
Abandoned 4

KENTUCKY-TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Warren	3	9	0	0	0	5	5
Allen	7	10	4	0	0	8	8
Barren	1	30	0	0	0	10	10
Ohio	42	1,086	13	1	3	65	68
Daviess	50	2,092	9	0	4	36	40
Hancock	1	0	0	1	0	5	5
McLean	0	0	0	0	0	4	4
Henderson-Union	0	0	0	0	0	4	4
Webster	1	25	0	0	0	2	2
Simpson	0	0	0	0	0	1	1
Breckenridge	1	0	1	0	0	2	2
Butler	0	0	0	0	1	3	4
Hopkins	1	20	0	0	0	9	9
Muhlenburg	0	0	0	0	0	2	2
Meade	0	0	0	0	0	1	1
Caldwell	0	0	0	0	0	1	1
Trigg	0	0	0	0	0	1	1
Cumberland-Monroe	0	0	0	0	0	1	1
Christian	0	0	0	0	3	2	5
Metcalf	1	0	0	0	1	0	0
Hardin	0	0	0	0	0	1	1
Wayne	2	10	1	0	0	5	5
Estill	7	7	2	0	0	4	4
Powell	2	3	0	0	0	0	0
Wolfe	1	6	0	0	0	1	1
Johnson-Magoffin	1	0	1	0	1	2	3
Floyd-Knott	2	50	0	1	0	1	1
Clay	2	0	1	1	0	0	0
Knox	0	0	0	0	0	3	3
Breathitt	0	0	0	0	0	1	1
Total Oct.	125	3,353	32	5	12	180	192
Total Sept.	130	3,390	38	4	16	170	186
Difference	5	37	6	1	4	10	6

TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Clay	1	20	0	2	11	13
Jackson	1	50	0	0	2	2
Marshall	0	0	0	1	0	1
Decatur	0	0	0	1	0	1
Total Oct.	2	70	0	4	13	17
Total Sept.	5	165	0	4	14	18
Difference	3	95	0	0	1	1

WELLS COMPLETED
WARREN COUNTY
Bowling Green—Joe McLemore, Thomp-Oil 9 6
Jake Stegner, McGinley-Randall Supply 5 2
E. L. Covington, John Boyd 5 1

Wells completed 3
Production 9

ALLEN COUNTY
Scottsville—Jim Williams, White & Son 5 5
Jim Williams, White & Pearson 6 3
P. Welch, Harley & Coatsworth 2 2
B. R. Freeman, H. K. Parson 7 ..... dry
Alec Underwood, J. D. White 1 ..... dry
L. M. Stovall, J. R. Evans & Co. 1 .... dry
Brudy Williams, Lee Moore & Co. 1 .. dry

Wells completed 7
Production 10
Dry 4

BARREN COUNTY
Glasgow — Walter Browning, Hunt & Leach 14 30

OHIO COUNTY
Hartford—J. C. Ellis, Ohio Oil 17 75
E. L. Patton, Ohio Oil 2 20
J. H. Davis, Ohio Oil 4 50
Ella Henning, Ohio Oil 2 10
Chas. Roach, Ohio Oil 6 ..... dry
Mary J. Elmore, Wood Oil 33 50
Mary J. Elmore, Wood Oil 34 50
Mary J. Elmore, Wood Oil 35 100
John Naddox, Wood Oil 1 100
John Naddox, Wood Oil 2 20
J. E. Mitchell, Wood Oil 5 5
J. R. Weller, James C. Ellis 34 50
J. R. Weller, James C. Ellis 35 40
Wade heirs, James C. Ellis 1 ..... dry
Bob Hamilton, Cumberland Pet. 15 40
Kelley heirs, S. H. Russell 6 ..... dry
E. E. Fuqua, S. H. Russell 2 ..... dry
B. M. Evans, Leeper Oil 1 20
M. Roach, A. M. Myers 2 ..... dry
Hill Rhodes, C. E. Daugherty & Co. 11 50
J. W. Whittaker, French, Lyle & Co. 1 40
T. L. Hickey, Creek Drilling 1 ..... dry
Vic Martin, H. B. Cameron & Co. 1 .. dry
R. L. Ambrose, Whitehill & Reich 2 .. 25
Cora Wells, Mecca Oil 17 100
Joe Bellamy, Oliver Jenkins & Co. 5.. 20
L. C. Powers, Porter, Evans & Co. 1 .. dry
A. Whitehouse, Porter, Evans & Co. 1. dry
Mary E. Wilson, Boston-S. W. Oil & Gas 9 ..... dry
Richard Coopage, Arnold & Co. 1 .... dry
J. B. Mitchell, Sunnydale Oil & Gas 1. 8
C. D. Ralph, Toppino, Dean & Kissler 1 5
Unknown, Vickers & Jones 1 ..... dry
W. J. Maden, Randolph & Co. 3 8
Nancy Farmer, M. F. Stirman 1 25
Nancy Farmer, M. F. Stirman 2 50
Alfred Willoughby, Vickers & Co. 1 .. gas
O. Westerfield lot, Dug Bolling 2 20
J. L. & J. H. Ralph, C. Claypool & Co. 6 30
Ada Kelley, White Plains Oil & Gas Co. 6 50
Ed Hendricks, Ray Bighen & Co. 4 .. 25
A. S. Edge, Turner & Lewis 1 ..... dry

Wells completed 42
Production 1086
Dry 13
Gas 1

DAVIESS COUNTY
Owensboro — J. W. Tompkins, Creek Drilling 9 220
Ivan Leet, Bell & Co. 1 15
Robt. Purcell, Iley B. Browning 1 .... dry
Oscar Wells, Smith, Randolph & Co. 3 160
Oscar Wells, Smith, Randolph & Co. 4 150
J. L. Park, L. C. Young 2 30
Robt. L. Sands, L. C. Young 4 35
K. N. Yeiser, L. C. Young 3 120
K. N. Yeiser, L. C. Young 4 90
Christian heirs, C. E. Daugherty & Co. 3 35
Ambrose Feldpausch, C. E. Daugherty & Co. 1 8
Irwin & Slagle, D. C. Stimson & Co. 4 40
Mayfield, D. C. Stimson & Co. 4 35
Mayfield, D. C. Stimson & Co. 5 30
W. A. Murray, Eastern Gulf Oil 5 20
E. L. Baird, Wade & Moore 2 40
Jimmie Hayden, Imperial Oil & Gas 1 35
Jimmie Hayden, Imperial Oil & Gas 2 25
Walter Hinton, M. B. French & Co. 2 10
L. R. Howard, M. B. French & Co. 2.. 75
Walter Hinton, M. B. French & Co. 3.. 5
Rodgers heirs, Pratt Bros. 4 ..... dry
E. L. Burns, Petroleum Dev. 2 65
Alvey Tyler, Three Sands Oil 5 70
Alvey Tyler, Three Sands Oil 6 130
Eli Corder, Tri-County Oil 3 ..... dry
G. B. McCamish, Pratt Bros. 1 ..... dry
M. S. Ruby, Eastern Gulf Oil 2 ..... dry
M. E. Cravens, Ohio Oil 1 ..... dry
Lawrence Roby, Ohio Oil 10 15
Dr. Fireline, Louis Robbins & Co. 1 .. 60
Trodgen, Evans, Garrison & Co. 3 30
Rhodes heirs, Swarthout & Rhodes 1 .. 25
Robt. Conley, C. E. McKenney & Co. 1 15
E. L. Burns, The Petroleum Co. 3 145
H. Simmons, Rowe & Randall 1 8
R. A. Nance, Jolly Oil Synd. 1 ..... dry
T. H. Mattingley, Kipp Oil 9 35
W. L. Barnett, Leeper Oil 5 10
Merit Sands, Rex-Pyramid Oil 2 5
Joe Brown, New Domain Oil & Gas 1. 10
Frank Fuqua, McMahan & Co. 1, 2 .. dry
W. L. Barnett, Leeper Oil 6 15
C. M. Jones, L. S. Cough & Co. 5 70
C. M. Jones, L. S. Cough & Co. 6 70
Ward, Having & Gray 1 35
Emmett Burton, Daley & Lowman 1.. 60
Purcell, Goldburg & Garrison 1 10
Hickory School lot, M. B. French 1... 30

Wells completed 50
Production 2092
Dry 8

HANCOCK COUNTY
Pellville—Unknown, H. H. Vickers & Co. 1 ..... gas

WEBSTER COUNTY
Sebree—Curry, E. M. Wilson & Co. 1 ... 25
BRECKENRIDGE COUNTY
Glendean—Jos. Wilhoit, Mecca Oil 2 ... dry
HOPKINS COUNTY
Madisonville—At Christy, Copper Flash Oil 19 20
METCALF COUNTY
Edmonton—D. Schreiver & Co. 1 ..... gas
WAYNE COUNTY
District 3—Alford Cooper, Bell & Back 17 ..... dry
District 5—J. F. Gregory, J. C. Blair & Co. 9 10

Wells completed 2
Production 10
Dry 1

ESTILL COUNTY
District 7 — Wm. Tackett, McEldowney, Bowser & Co. 3 1
Pleas Tipron, Superior Oil Corp. 11 ... dry
District 8—A. F. West & Co., Superior Oil Corp. 29 1
W. P. Wise, Superior Oil Corp. 15 1
T. W. Tyree, Superior Oil Corp. 24 2
Henry Miller, Superior Oil Corp. 9 ... 2
Henry Miller, Superior Oil Corp. 10 .. dry

Wells completed 7
Production 7
Dry 2

POWELL COUNTY
District 15—Joe Mullins, Keenan & Adkins 5 5
E. A. Wireman, Hillsdale Oil & Gas 10 3

Wells completed 2
Production 8

WOLFE COUNTY
District 9—E. B. Roberts, Garrison Bros. & Co. 14 6
JOHNSON-MAGOFFIN COUNTIES
District 30—Dan Davis, S. T. S. Development 2 ..... dry
FLOYD-KNOTT COUNTIES
District 21—Frank Allen, Kentucky & West Virginia Gas 1 50
Joe Baldridge, Distill-Martin Oil & Gas 1 ..... gas

Wells completed 2
Production 56
Gas 1

CLAY COUNTY
Manchester—Taylor Spurlock, Petroleum Exploration 1 ..... dry
Henry B. Hensley, Petroleum Exploration 1 ..... gas

WELLS COMPLETED
TENNESSEE
CLAY COUNTY
Celina—Sanford Stamps, Reeser & Edwards 6 20
JACKSON COUNTY
Gainsboro — W. R. Hawkins, Blick & Blick 16 50

EAST CENTRAL TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Anderson	3	600	1	1	1	4	5
Cherokee	1	0	1	0	1	2	3
Freestone	0	0	0	0	0	1	1
Henderson	0	0	0	0	0	0	0
Limestone	2	0	1	1	1	2	3
Navarro	0	0	0	0	0	0	0
Rusk	0	0	0	0	0	1	1
Smith	1	0	1	0	0	1	1
Total Oct.	7	600	4	2	3	11	14
Total Sept.	12	472	10	0	3	15	18
Difference	5	128	6	2	0	4	4

WELLS COMPLETED
ANDERSON COUNTY
Keechi, Adams, J. S. Cosden et al 1.. abd
Boggy Creek, Roberts, Humble O. & R. Co. 1 ..... gas
Boggy Creek, Mandalstam, Humble O. & R. Co. 3 600

Wells completed 3
Production 600
Abandoned 1
Gas 1
Gas production 2,000,000

CHEROKEE COUNTY
Boggy Creek, Weinberg, Humble O. & R. Co. 2 ..... abd
LIMESTONE COUNTY
Mexia, Thompson, C. T. Style et al 1.. abd
Poindexter, Yost et al 1 ..... gas
SMITH COUNTY
Bullard, McCammond, Gulf Prod. 3 .... abd

EAST TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Bowie	0	0	0	0	0	1	1
Cass	0	0	0	0	0	1	1
Camp	0	0	0	0	0	1	1
Harrison	2	0	0	2	0	1	1
Panola	2	0	0	2	3	10	13
Red River	0	0	0	0	0	3	3
Shelby	0	0	0	0	0	2	2
Total Oct.	4	0	0	4	3	19	22
Total Sep.	8	6	3	4	4	7	11
Difference	4	6	3	0	1	12	11

Gas production in cubic feet: Harrison 2,072,000; Panola, 10,000,000; Total 12, 072,000 cubic feet.

HARRISON COUNTY
John Furrh, Nick Barbee 5; James Short Survey ..... gas
Abney, Tylong Oil & Gas Co. 1 ..... gas

Gas production 2,072,000

PANOLA COUNTY
Werner Sawmill Co., Arkansas Natural Gas Corp. 5; Thomas Cox Survey .. gas
Abney, Bethany Oil & Gas Co. 1; B. C. Jordan Survey ..... gas

Gas production 10,000,000

ROCKY MOUNTAIN AREA

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg	Ttl
Chaves	0	0	0	0	0	4	4
Curry	0	0	0	0	0	1	1
De Baca	0	0	0	0	1	2	3
Eddy	2	250	1	0	3	3	
Guadalupe	0	0	0	0	0	2	
Lea	0	0	0	0	5	22	
McKinley	0	0	0	0	2	10	
San Juan	1	0	0	1	4	23	
Torrance	0	0	0	0	1	5	
Valencia	0	0	0	0	0	2	
Miscellaneous	0	0	0	0	2	10	
Total Oct.	3	250	1	1	18	84	
Total Sept.	3	175	2	0	19	75	
Difference	0	75	1	1	1	9	

UTAH

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg
Box Elder	2	0	2	0	0	1
Grand	0	0	0	0	0	0
San Juan	0	0	0	0	0	2
Uinta	0	0	0	0	0	5
Washington	0	0	0	0	0	7
Miscellaneous	0	0	0	0	0	8
Total Oct.	2	0	2	0	0	23
Total Sept.	0	0	0	0	3	31
Difference	2	0	2	0	3	1

WYOMING

Summary of Field Operations

Dist. or County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg
Salt Creek	1	209	0	0	5	5
Big Horn	0	0	0	0	3	12
Carbon	0	0	0	0	0	15
Converse	0	0	0	0	1	1
Fremont	1	0	0	1	0	14
Goshen	1	0	1	0	0	0
Hot Springs	0	0	0	0	2	2
Johnson	0	0	0	0	0	4
Lincoln	0	0	0	0	1	5
Natrona*	2	0	0	2	5	1
Niobrara	1	0	1	0	2	4
Park	5	2,500	1	0	4	24
Sweetwater	0	0	0	0	4	5
Sublet	6	180	3	0	2	2
Weston	1	25	0	0	1	2
Uinta	2	530	0	0	5	16
Miscellaneous	0	0	0	0	1	4
Total Oct.	20	3,444	6	3	36	151
Total Sept.	14	5,579	0	1	27	125
Difference	6	2,135	6	2	9	22

*Except Salt Creek.

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg
Bent	0	0	0	0	0	1
Fremont	7	677	3	0	3	17
Huerfano	0	0	0	0	0	6
Jackson	0	0	0	0	0	1
Jefferson	1	0	1	0	0	0
La Plata	0	0	0	0	1	1
Larimer	2	794	0	0	1	11
Las Animas	0	0	0	0	1	1
Moffat	4	1,060	3	0	6	10
Rio Blanco	1	0	1	0	0	0
Routt	3	85	0	0	3	5
Miscellaneous	0	0	0	0	0	22
Total Oct.	18	2,616	8	0	15	84
Total Sept.	6	960	5	0	13	80
Difference	12	1,656	3	0	2	4

MONTANA

Summary of Field Operations

Dist.—	Comp.	Prod.	Dry	Gas	Rigs	Drlg
Cat Creek	0	0	0	0	1	5
Kevin-Sunburst	19	830	7	3	12	20
Pondera	10	1,170	0	0	13	22
Miscel.	2	0	2	0	8	54
Total Oct.	31	2,000	9	3	34	101
Total Sept.	51	3,186	16	6	34	100
Difference	20	1,186	7	3	0	1

MONTANA
WELLS COMPLETED
9-34-1 Barger, Barger-Sunburst 4 ...
8-35-2 McGowan, Beardsley et al 1 ...
31-35-1 Allen, Big West Oil Co. ...
6-34-1 Allen, Bistate Oil Co. 1 ...
12-34-1 Steele, Big West Oil Co. 7 ...
24-35-2 Waite, Clara Oil Co. 6 ...
19-35-1 Bluhm, Craig Drilling Co. 1 ...
8-35-2 McGowan, Day Oil Co. 5 ...
32-35-1 Caine, "56" Pet. Corp. 50 ...
15-34-1 Murrils, Hannah-Porter 1 ...
1-34-2 Faunce, Hibbing-Sunburst 6 ...
16-35-1 State, Jones Oil Co. 3 ...
19-35-1 Kalispell-Kevin, Larson & White 3 ...
22-34-1 Dahl, Minne-Kota Synd. 1 ...
24-33-2 Frogge, Northern Natural Gas Dev. 1 ...
20-35-1 Zachor, Ogden-Kevin Oil Co. 4 ...
7-34-1 Harte, Radigan-Hungerford 19 ...
16-34-1 State, A. S. Smith et al 1 ...
29-35-2 Kalispell-Kevin, Texas Pacific C. & O. 5 ...
16-27-4 State, Fulton Pet. Corp. 3 ...
14-27-4 Hirshburg, Texas Pacific C. & O. 6 ...
15-27-4 Gjullin, Continental Dev. Co. 8 ...
15-27-4 Gjullin, Continental Dev. Co. 5 ...
10-27-4 Gjullin, McCracken et al 2 ...
15-27-4 State Bank, Rice & Burke 1 ...
16-27-4 State, P. & R. Oil Co. 3 ...
22-27-4 Hirshburg, Ohio Oil Co. 3 ...
15-27-4 Copley, P. & R. Oil Co. 2 ...
16-27-4 State, P. & R. Oil Co. 2 ...
7-25-1 Jackson, Medinah Oil Co. 1 ...
3-27-5 Willistein, Cosmos Pet. Co. 1 ...

Wells completed ...
Production ...
Dry ...
Gas ...

WYOMING
WELLS COMPLETED
35-40- 79 NW, Wyo. Associated 24-LS ...
12-15-118 Spring Valley Pet. 1 ...
22-15-118 Oscar Peterson Oil 2 ...
23-46- 64 Lease & Holloway 1 ...
25-27-113 Seabeck Oil Co. 1 ...
22-27-113 Akin Butte Oil Co. 1 ...
34-27-113 California Pet. 7-C ...
3-26-113 California Pet. 2-G ...
10-26-113 California Pet. 4-C ...

-113 California Pet. 7-F ..... dry
-100 Klindt, Cody Pet. 4 1500
-100 Rousseau, Lenco Pet. 1 150
-100 Rue, Chas. E. Orchard 2 250
-103 California Explin. 1-A ..... dry
-100 Sonners, Ohio Oil 5 600
-62 Denning, Buck Creek Oil 1 ..... dry
-82 Michael C. Welsman 1 ..... gas
-82 Michael C. Welsman 2 ..... gas
-62 Foreman Oil Co. 1 ..... dry
-92 Muskrat, Prod. & Refs. 1 ..... gas

Wells completed 20
Production 3444
Gas 75,000,000
Dry and abandoned 6

NEW MEXICO
WELLS COMPLETED

-31 Compton, Texas Prod. Co. 1 ..... dry
-29 Rawson, Geo. F. Getty, Inc. 3 250
-9 Goede, Huntington Park Oil 1 ..... gas

Wells completed 3
Production 250
Gas 2,000,000
Dry 1

COLORADO
WELLS COMPLETED

-36 Edwards, Texas Prod. Co. 1 5
-36 Irwin-Carstarphen, Texas Prod. Co. 2 80
-36 Rule, Texas Prod. Co. 1 ..... abd
-34 Freeman, Texas Prod. Co. 1 ..... dry
-32 Parkinson, Texas Prod. Co. 6 ..... dry
-32 Parkinson, Midwest Ref. 33-SD 960
-32 Parkinson, Midwest Ref. 7-SD. 100
-32 Yarg, Shaffer O. & R. 205 ..... dry
-28 Buckeye, Union Oil of Calif. 7 544
-28 Scott, Union Oil of Calif. 3 250
-29 Knowles, C. F. Woods et al 1. dry
-70 Beltramo, St. Mary's Oil 2 400
-70 Richwalt, Bunker & Colwell 2 dry
-70 Robinson, Continental Oil 1 50
-70 Vezzetti, Continental Oil 1 40
-70 Stiers, Texas Prod. Co. 1 ..... dry
-69 Travis, Travis, Vogel & Raddatz 19 187
-70 Robbins, Continental Oil 2 ..... dry

Wells completed 18
Production 2616
Dry and abandoned 8

UTAH
WELLS COMPLETED

-4 Lakeside Oil Co. 1 ..... abd
-34 Leonora-Raddatz Synd. 1 ..... abd

Wells completed 2
Dry and abandoned 2

EASTERN FIELDS

Summary of Completed Wells

Fields—	Comp.	Prod.	Dry	Gas
Bunny	47	130	1	0
Buford	163	258	0	0
Cabe Field	11	34	0	1
Chango-Clarion	47	42	6	11
Cher-Armstrong	19	31	4	2
Clarion	60	209	7	31
Northwest Pa.	13	29	1	7
Northeast Ohio	65	1,010	10	14
Total Oct.	415	1,743	28	67
Total Sept.	428	1,846	33	53
Difference	13	103	5	14

Summary of Work Under Way

	Rigs	Drlg.	Ttl.
Bunny	10	44	54
Buford	23	66	89
Cabe Field	0	14	14
Chango-Clarion	0	12	12
Cher-Armstrong	3	11	14
Northern Pennsylvania	9	24	33
Clarion Virginia	40	101	141
Northeast Ohio	24	99	123
Total Oct.	109	371	480
Total Sept.	97	351	448
Difference	12	20	32

WELLS COMPLETED
Allegany Field

-2 fee, Forest Oil Corp. 20B 1
O. Co. et al, Reeland et al 2
h & Gray, J. B. Gray 1
J. E. LeSuer et al 1
P. L. Putnam et al 1
J. A. Bucher 1
Conkling & Reeland 1
F. L. Williams 1
First National Bank Olean 1
J. W. Johnson et al 1
C. C. Brennan et al 1
et al, M. S. Crowley et al 2
A. H. McDonald Heirs 2
I. O. Dillie et al 2
Wm. Barton et al 3
C. H. Lavens et al 3
Martin Bros. et al 2
Ferrington, Frost, Leffler & 1
Amos & Millis ..... gas
Moore et al 1
C. M. Barnes et al 2
A. H. Ashworth 1
Dusenbery et al 1
Phillips & Howard 2
Phillips & Howard 2
J. K. Cochran 3
J. K. Cochran 4
J. K. Cochran 3
J. K. Cochran 3
J. K. Cochran 4
J. K. Cochran 3
J. K. Cochran 2
J. K. Cochran 3
J. K. Cochran 7
J. K. Cochran 3
J. K. Cochran 3
Bradley Producing Corp. 4
Bradley Producing Corp. ..... water
Oil, Pure Penn Oil 2
Heirs, N. V. V. Franchot 5
N. V. V. Franchot 4
Harriet, A. & G. W. Hooker 1
fee, Frederick N. and Joseph 4
N. V. V. Franchot 15
fee, Sepaney Oil 10
el & Meridan, Jacob Meridan 5
on & Ramsbottom, G. A. Ramsom 2
Joseph Sutter 1

Wells completed 47
Production 130

Bradford Field

-6 fee, Forest Oil Corp. 106 1
by fee, Forest Oil Corp. 44 1
Tyler fee, Forest Oil Corp. 92 1
Tyler fee, Forest Oil Corp. 93 1
Drake fee, Forest Pet. Corp. LO 44 ..... pressure
Drake fee, Forest Pet. Corp. LG 93 1
Drake fee, Forest Pet. Corp. 1H 36 1
Drake fee, Forest Pet. Corp. 1-H 38 1
Drake fee, Forest Pet. Corp. 1H 40 1
Drake fee, Forest Pet. Corp. 1H 42 1
Drake fee, Forest Pet. Corp. 1H 44 1
Drake fee, Forest Pet. Corp. L-5 1
Drake fee, Forest Pet. Corp. L-6 1
Drake fee, Forest Pet. Corp. L-7 1
Drake fee, Forest Pet. Corp. L-11 1
Drake fee, Forest Pet. Corp. L-17 1
Drake fee, Forest Pet. Corp. L-21 1
Drake fee, Forest Pet. Corp. L-26 1
Drake fee, Forest Pet. Corp. L-34 1
Drake fee, Forest Pet. Corp. L-42 1
Drake fee, Forest Pet. Corp. L-45 1
Drake fee, Forest Pet. Corp. L-47 1
Drake fee, Forest Pet. Corp. L-50 1
Drake fee, Forest Pet. Corp. L-53 1
Drake fee, Forest Pet. Corp. L-54 1
Drake fee, Forest Pet. Corp. L-56 1
Drake fee, Forest Pet. Corp. L-58 1
Drake fee, Forest Pet. Corp. L-59 1
Drake fee, Forest Pet. Corp. L-61 1
Drake fee, Forest Pet. Corp. L-63 1
Drake fee, Forest Pet. Corp. L-69 1
Drake fee, Forest Pet. Corp. L-72 1
Drake fee, Forest Pet. Corp. L-76 1
Drake fee, Forest Pet. Corp. L-77 1
Drake fee, Forest Pet. Corp. L-85 1
Drake fee, Forest Pet. Corp. L-86 1
Drake fee, Forest Pet. Corp. L-89 1
Drake fee, Forest Pet. Corp. L-91 1
Drake fee, Pro est Pet. Corp. L-99 1
Bingham 386, McKean Co. Trust Co. Inc. 40 ..... water
Bingham 386, McKean Co. Trust Co., Inc. 41 3
Fee, S. H. Elder, No. 4, 15 1
Bingham 296, Andrus & McDowell 122 2
Bingham 296, Andrus & McDowell 123 2
Bingham 392, Hooper & Elder 30 2
Bingham 380, Wilson & Fitzgibbons 91 2
Bingham 391, George W. Bovaird 97 2
Bingham 371, Lane No. 1 et al 53 1
Bingham 370, R. M. and James George 36 3
Fee, South Penn Oil Co. 2
H. H. Redfield, South Penn Oil Co. 4
Fee, Lawrence & Lawrence 2
E. J. Burns et al, Bliss Oil Co. 2
Fee, Davis Oil Corp. 2
Fee, R. O. Landers 3
Fee, T. B. Wilson et al 1
Fee, T. B. Wilson et al 2
Fee, Hazelwood Oil Co. 2
N. V. V. Franchot, F. A. Wile et al 1
Fee, Hooker et al 1
Fee, Hazelwood et al 1
N. V. V. Franchot, Robert Jones 2
Fee, Hazelwood Oil Co. 1
N. V. V. Franchot, Thos. T. Fox 1
N. V. V. Franchot, D. & P. Co. 2
Fee, J. A. Walters estate 2
Fee, E. C. Murphy 15
Hallenback & Minister, Jackson et al 2
Fee, W. C. Kennedy Co. 2
Bingham, Hazlewood Oil Co. 4
Bingham 453, South Penn Oil Co. 2
Bingham 439, South Penn Oil Co. 3
Bingham 439, South Penn Oil Co. 4
Bingham 533, South Penn Oil Co. 1
Bingham 570, South Penn Oil Co. 2
Young & Newman, South Penn Oil ..... water
Fee, C. R. Nush et al 3
Fee, Hazelwood Oil Co. 1
Bingham 394, Saph & Wright 4
Fee, H. Kennedy No. 6, Clinger & Kopp 3 1
Bingham 405, South Penn Oil Co. 1
Bingham 423, South Penn Oil Co. 2
Bingham 576, South Penn Oil Co. 2
Bingham 576, South Penn Oil Co. 2
Howard, Pressure Oil 2
Doubleday, Pressure Oil 2
Borden, T. B. Martin 3
Duke, Gridiron Oil 2
Borden, A. Williams 2
Fee, F. E. Baldwin 2
Middaugh, A. L. & L. M. Lilly 2
Kuhn, Davis Oil 3
Kuhn, Davis Oil 3
Burns, Davis Oil 3
Duke, Penn Petroleum 3
Fee, C. A. Duke 4
Duke, Shopperle Bros. 2
Duke, Shopperle Bros. 2
Fee, Sarah Sprague 2
Fee, Shoff Bros. 2
Fee, Minich Bros. 2
Bingham, H. P. McKalip et al 2
Wright, R. & E. H. Culbertson et al 2
Bingham, S. P. Oil 1
Bingham, J. L. Yerdon 3
Burns, Davis Oil 2
Fee, D. J. Moody 2
D. C. & B. C. A. Duke 5
Keating, First Natl. Bank, Olean 5
Fee, Mix Creek Oil 2
Fee, Mix Creek Oil 2
Fee, Mix Creek Oil (4 holes) ..... water
Weston, G. C. Rice et al 1
Fee, E. D. Kepner Oil 4
Fee, E. D. Kepner Oil 3
Rounds, A. W. Kauman 1
Rounds, N. V. V. Franchot ..... water
Fee, G. W. Smith estate ..... water
Fee, North Branch Oil ..... water
Fee, Curtis & Dunlavey Bros. 10
B. I. Taylor, S. P. O. 012 ..... pressure
Burdick, S. P. O. 60 1
Hooker, S. P. O. 44 ..... pressure
Hamlin, S. P. O. 123 2
Hamlin, S. P. O. 124 2
Bingham, 151-154, S. P. O. 08 ..... pressure
B. I. Taylor, S. P. O. 013 ..... pressure
Bingham, S. P. O. 24 1
Bing-Satt, 142, S. P. O. 143 1
Bingham, 439 S. P. O. 115 1
Bing-Satt, S. P. O. 143 1
Bing-Sat, S. P. O. 144 1
Bingham, 387 S. P. O. 11 1
Bingham, 533 S. P. O. 99 1
Bingham 439, S. P. O. 116 2
Tract 22, Hazelwood Oil Co. 51 1
Tract 28, Hazelwood Oil Co. 71 1
Tract 23, Hazelwood Oil Co. 110 1
Tract 27, Hazelwood Oil Co. 145 1
Oct. 4, fee, Potter Lease, Sloan & Zook Co. E-8 1
Oct. 6, fee, Potter Lease, Sloan & Zook Co. E-12 1
Oct. 9, fee, Potter Lease, Sloan & Zook Co. F-2 1
Oct. 10, fee, Potter Lease, Sloan & Zook Co. I-4 1
Oct. 15, fee, Potter Lease, Sloan & Zook Co. E-4 1
Oct. 16, fee, Potter Lease, Sloan & Zook Co. I-8 1
Oct. 16, fee, Potter Lease, Sloan & Zook Co. F-11 1
Oct. 18, fee, Potter Lease, Sloan & Zook Co. D-5 1
Oct. 18, fee, Potter Lease, Sloan & Zook Co. E-2 1
Oct. 23, fee, Potter Lease, Sloan & Zook Co. A-10 1
Oct. 23, fee, Potter Lease, Sloan & Zook Co. B-6 ..... pressure
Oct. 23, fee, Potter Lease, Sloan & Zook Co. I-12 1
Oct. 23, fee, Potter Lease, Sloan & Zook Co. A-16 1
Oct. 26, fee, Potter Lease, Sloan & Zook Co. A-2 1

Wells completed 152
Production 258

Middle Field

Jennings, Titusville Trust 10 5
Grandin, Clinger, Ball et al 10 2
Johnson, Clinger Bros. et al 12 3
King, E. Pequignot 18 2
Bingham, Rocky Grove Oil Co. 18 1
Goal, Goal Oil Co. 62 2
Goal, Goal Oil Co. 63 5
Goal, Goal Oil Co. 64 3
Henry, Hickey & Riss 7 10
Lot 2,978, Kinzua Valley Chem. Co. ..... gas
McDonald, J. L. Billstone 1

Wells completed 11
Production 34
Gas 1

Venango-Clarion

Brummingan, National Pet. 68 2
Wright, Mercer Oil ..... dry
Moyer Bros., Moyer Bros. 106 1
Moyer Bros., Moyer Bros. 107 1
McCalmont, McCalmont 1
McCalmont, McCalmont 1
McConnell heirs, E. A. Bream 6 1
Ragle, S. N. Reagle 15 1
Doutt, F. H. McKean 12 1
Zimmerman, Adam, H. T. and W. T. Zimmerman 12 2
Porter, Helscil & Weekly 5 1
Porter, Helscil & Weekly 6 1
Pierson, Midland Oil Corp. 1 1
Pierson, Midland Oil Corp. 2 1
Pierson, Midland Oil Corp. 3 1
Call, Z. T. Call 25 1
McElphatrick, McElphatrick & Witherup 24 1
Phipps & Turk, Crawford, Gregory Rock acct. 21 1
McKee, G. A. Eakin 24 1
Hovis, H. B. Thorn and C. L. Irwin 16. 1
Porter, E. A. Burch et al 101 1
Porter, E. A. Burch et al 102 1
Trax, H. B. Trax 34 1
Staub, Surety Oil 14 3
Staub, Surety Oil 15 4
Stiles tract 74, S. Y. Ramage acct. 2, 74 2
Schwab, J. E. Keyerline 2 3
Schwab, J. E. Keyerline 3 1
Hydinger, E. & G. Gas 1 ..... gas
Bassett, Glass & James 1 ..... dry
Bassett, Glass & James 2 ..... gas
McLaughlin, Thomas McLaughlin & Co. 6 ..... gas
Clarion—
Baughman, A. Hufnagle Co. 3 ..... gas
Baughman, A. Hufnagle Co. 4 ..... gas
Ginkel, C. H. Weaver 1 ..... gas
Ginkel, C. H. Weaver 2 ..... gas
Wedekind, I. C. Hess et al 3 ..... gas
Rapp, N. T. Shortset et al 3 ..... dry
Buzard, T. W. Phillips Gas & Oil 1 ..... gas
Hess, H. J. Crawford 14 3
Mehertan, E. Deemer 1 ..... dry
Meherton, E. Deemer 2 1
Ausel Kroh & Fisher 1 ..... dry
Moong, Fogle, Clinger & Kopp 3 1
Keating heirs, Freeman, Dittman et al 3 ..... gas
Sterner, Quirk, Minn et al 1 ..... gas
Edinger, Roy Edinger 2 1
Stewart, Shannon, Stewart et al 3 ..... dry

Wells completed 47
Production 42
Dry 6
Gas 11

Butler-Armstrong

Campbell, Mark W. Graham et al 15 .. 5
Jenkins, A. H. Strance & Co. 2 3
McKee, McKee & Pollock 14 3
Donnelly, Bear Creek Oil 2
Daugherty, Beaty, Kaylor et al ..... dry
Donaldson Lbr. Co., R. B. Donaldson & Co. 2 3
Sherwin, James Sherwin 7 ..... dry
Harmon, D. H. Wheeler 2 3
McIlish, McIlish & Co. 1 ..... gas
Gillespie, Young Bros. 4 1
Myers, Myers & Montgomery 2 ..... gas
Dewey estate, C. E. Jones 2 ..... dry
Dulity, Little Four Oil 2 1
Dierken, Dan Dierken 4 1
Marshall, Miller & Gould 36 1
Vogan, M. B. Finney 12 4
Snyder, W. M. Ruby 16 ..... dry
Buehler heirs, Sammis & Co. 1 1
Hutchison, L. D. and T. R. Campbell 8. 3

Wells completed 19
Production 31
Dry 4
Gas 2
Rigs, 3; drilling, 11.

SOUTHEAST OHIO
WELLS COMPLETED
MONROE COUNTY

Sutton, Shay, McMullen & Co. 1 ..... gas
Bode, Timlin & Co. 12 5
McElfresh, Woodsfield O. & G. 1 1
Nieb, Park & Co. 3 5
Stine, Hamilton & Co. 1 ..... dry

PERRY COUNTY

McCarty, Ralston & Maynard 16 10
Flasher, Kemrow Co. 1 ..... dry
Tedrow, Melick, tr., 1 40
Martin, Ohio Fuel Gas 1 ..... gas
Turner, Ohio Fuel Gas 1 40
Burley-Winters, Cline & Co. 3 230
Allen, Wehrle Co. 1 5
Brown, Bloomingville O. & G. 3 95
Dever, Bramberg Dev. Co. 1 15
Valentine, Burkhart & Co. 1 ..... dry
Pillsbury, Buckeye Supply Co. 1 ..... gas

HOCKING COUNTY

Mohler, Griffin Prod. Co. 1 ..... gas
Wion, Buckstone Oil 8 ..... dry
Harden, Preston Oil 4 ..... gas
Miller, Graystone Oil 5 30

GUERNSEY COUNTY

Winnet, Gordon Oil 1 20
Simmons, Gas Prod. Co. 3 20
Maston, McCarton & Co. 1 10
Tittle, Souls & Co. 1 5
Thomas hrs., Craig & Co. 1 50

HOLMES COUNTY

Franks, Kemrow Co. 1 1
Leadbetter, East Ohio Gas 1 ..... gas
Sowash, East Ohio Gas 6 25
Weaver, Ohio F. G. Co. 1 ..... gas

LICKING COUNTY

Chaney, Kuntz & Hulse 4 35
Ashcraft, M. F. Whitehill 2 10
Ashcraft, M. F. Whitehill 4 20
Wright, Preston Oil 7 10
E. Wright, Farmer & Rugg 7 10
Ashcraft, Preston Oil 3 10
Dusthelmer, A. E. Helsey Co. 3 ..... gas
Chapin, Emerald Pet. Co. 8 8
Beatty, Preston Oil 1 115

MUSKINGUM COUNTY

Shaw, Bebout & Co. 1 ..... gas
Reihl, Luther & Co. 1 ..... gas
Tannerhill, Hunt-Athey Co. 1 ..... dry

FAIRFIELD COUNTY

Thomas, Perry Sturm 1 ..... gas
Spohn, Preston Oil 2 70

NOBLE COUNTY

Crum, Yerain & Co. 1 5

KNOX COUNTY

Beatly, Preston Oil 1 100

VINTON COUNTY

Beckley, Co-operative Oil Co. 6 5
Irwin, Gross & Co. 1 ..... gas

MORGAN COUNTY

Curtis, I. N. Thomas 4 5

MEIGS COUNTY

Burkhart, Ohio F. S. Co. 1 ..... gas
Stobert, Twenty-Five Assn. 1 5
Carnahan, McGhee & Co. 4 ..... dry
Mitchell, Pure Oil Co. 2 1
Hysell, Davis Oil Co. 5 5
Holter, Tyrell & Co. 1 1

WASHINGTON COUNTY

Noland, W. C. Noland 5 2
Cochran hrs., Hill Top Oil 3 ..... gas
Oliver, Huntsman & Co. 19 ..... dry
Torner Oil Co., Reader & Co. 61 ..... dry
Madson, Mendenhall & Co. 1 5
Meister-Blair, Meister & Blair 2 10
Hall, McMullen, Shay & Co. 1 25
Felter, Campbell & Co. 1 ..... dry

JEFFERSON COUNTY

Miskel, Miller-Lees O. & G. 12 7

Wells completed 65
Production 1010
Dry 10
Gas 14

WEST VIRGINIA
WELLS COMPLETED
LEWIS COUNTY

Jackson, Carnegie Gas 5 ..... gas
Kenney hrs., Moran Bros. 1 ..... gas

HARRISON COUNTY

Helmrick, Beren & Beren 6 5
Fluharty, Owens B. & M. Co. 1 ..... gas
Hayt, Helmar Oil 4 ..... gas
Morris, Monroe & Laughlin 1 ..... gas

WETZEL AND TYLER COUNTIES

Hubbard, Mfrs. L. & M. Co. 2 ..... gas
Shuman, Baker Oil 2 ..... gas
Maple, S. N. Elliott 6 8
Smith Bros., So. P. O. Co. 38 ..... gas

DODDRIDGE COUNTY

Flanagan, Moses & Raad 1 ..... gas
Maxwell, G. H. & J. E. Travis 1 ..... gas

RITCHIE COUNTY

Grubb, So. P. O. Co. 1 10
Mount, Burk O. & G. 103 5
Pearcey, Mid Penn Oil 1 ..... gas
Riggs, Phila. Oil Co. 1 ..... gas
Dotson, Lamp & Co. 1 5
Dotson hrs., L. P. Bickel & Co. 1 ..... gas
Ayers, Deem & Co. 1 ..... dry
Morris, O'Day est., 1 ..... gas
Grimm, Park Bowser 3 30

GILMER COUNTY

Riddle, McCall Drlg. Co. 6 3
Westfall, Carnegie Gas Co. 2 ..... gas
Huffman, Chartier Oil Co. 10 ..... gas

WIRT COUNTY

Smith Oil Co., Smith Oil Co. 6 ..... gas
Rathbone Oil tract, Roberts Bros. 163.. dry
Patterson, A. C. Adair 3 1
Beckert, Liberty Supply Co. 2 2

PLEASANTS COUNTY

Rawson, Dinsmoor & Co. 1 ..... dry

ROANE COUNTY

Stockly, So. P. O. Co. 75 10
Stockly, So. P. O. Co. 76 10
Stockly, So. P. O. Co. 78 10
Stockly, So. P. O. Co. 79 20
Nixon, So. P. O. Co. 2 35
Seaman, Hevk Oil Co. 1 ..... gas
Smith, G. L. Cabot 1 ..... dry
Boggs, U. G. & O. Co. 5 15

CALHOUN COUNTY

Thomas, B. J. Crowley 1 ..... gas
Hardman, Sr., Koethe O. & G. 9 ..... gas
A. Hardman, Hope C. & G. 5 ..... gas
Baughman, Brown & Co. 29 2
Davis, Dailey & Co. 1 5

JACKSON COUNTY

Kuhl, G. L. Cabot 1 25
Curry, Richman & Co. 1 ..... gas

KANAWHA COUNTY

Haynes, Chartiers Oil Co. 1 3
Parkersburg Mill Co., Chartiers Oil 1.. dry
Summers, Clifton O. & G. Co. 4 ..... dry

MINGO COUNTY

Caldwell, Public Gas Corp. 3 ..... gas

BOONE COUNTY

L. R. & P. tract, Pure Oil Co. 33 10
L. R. & P. tract, Pure Oil Co. 28 10
Federal Coal Co., G. L. Cabot 20 ..... gas
Brown hrs., G. L. Cabot 1 ..... gas
Chambers-Stowers, Hope Gas Co. 1 ..... gas
Lennib hrs., Owens B. & M. Co. 4 ..... gas
Brown, Columbia Carbon Co. 4 ..... gas
Hill, Mountain State Gas Co. 2 ..... gas

CABELL COUNTY

Schaug, West Va. Gas Corp. 17 ..... gas

PUTNAM COUNTY

Edwards, Bowles & Co. 1 ..... gas

Wells completed 60
Production 209
Dry 7
Gas 31

SOUTHWEST PENNSYLVANIA
WELLS COMPLETED
WASHINGTON COUNTY

Phillips, Perry Tombaugh 2 ..... gas

ALLEGHENY COUNTY

Schafer, Phillip Schafer 1 18
Hathaway, Carnegie G. Co. 1 ..... gas
Graham, Carnegie G. Co. 1 ..... dry
Edgewater Steel Co., Edgewater Steel 2 gas
McKelevey, Morrow & Co. 1 ..... gas
Heil, Warrendale O. & G. Co. 2 ..... gas
Buckart, Duff City O. & G. Co. 1 5
Leeper, Swan & Co. 1 1

GREEN COUNTY

McCullough, Mfrs. L. & H. Co. 1 ..... gas
Fonner, Mfrs. L. & H. Co. 1 ..... gas
Headlee, B. & N. O. & G. Co. 4 5
Sickelsmith, Oliver O. & G. Co. 18 2

Wells completed 13
Production 29
Dry 1
Gas 7

LIMA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	5	41	0	0	3	1	4
Hancock	1	30	0	0	0	3	3
Allen	5	140	0	0	0	2	2
Auglaize	3	27	1	0	0	4	4
Mercer	1	10	0	0	0	3	3
Van Wert	0	0	0	0	1	0	1
Seneca	10	180	6	1	0	7	7
Ottawa	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	1	1
Hardin	1	0	0	1	1	1	2
Darke	0	0	0	0	0	2	2
Wyandot	1	0	1	0	1	0	1
Huron	0	0	0	0	0	1	1
Total Oct.	27	428	8	2	6	26	32
Total Sept.	29	633	14	0	5	37	42
Difference	2	205	6	2	1	11	10

WELLS COMPLETED
WOOD COUNTY

Montgomery—T. S. Carmon, Ohio Oil 1, 2, 3, 5, 6 ..... abd
Plain—Charles R. Nearing, J. M. Walters 1 ..... abd
Liberty—Lehman Bros., Ohio Oil 15, 17, 25 ..... abd
Bloom—Dave Beihler, Mays & Bushey 1 12
Middleton—E. Berry, H. E. Berry 1 ... 8
Troy—William Roecher, Russell M. Bell & Co. 3 10
Perrysburg—Mary Reitzel, George W. Huffman & Co. 2 6
Webster—G. L. Dailey, George L. Daley 2 5

Wells completed 5
Production 41
Abandoned 9

HANCOCK COUNTY

Pleasants—H. M. & M. E. Rader, Wiser Oil 11 30
Liberty—J. G. Grubb, Ohio Oil 2 ..... abd
Mary A. Grubb, Ohio Oil 3, 10 ..... abd
William Cusac, Ohio Oil 12 ..... abd
C. C. Harris, Ohio Oil 1, 3, 9, 13, 15, 18, 19 ..... abd
Portage—R. A. Cooper, Ohio Oil 6 .... abd

Wells completed 1
Production 30
Abandoned 12

ALLEN COUNTY

Bath—Philo Bassett, Neely & Nolden 2 40
E. T. McCarey, B. L. Carman & Co. 2 35
Reuben Theet, H. F. Kelly & Co. 1 .. 25
William Lenney, Ira O. Post & Co. 8. 25
C. M. Lenney, C. A. Peavey 9 ..... abd
Dan Bressler, Frederick Roeder, Jr., 2, 3 ..... abd
Leroy Douglas, Ohio Oil 1, 4 ..... abd
Amanda—A. Keith, W. B. Evenbeck & Co. 3 15
Marion—J. P. Barnt, Ohio Oil 1, 4 .... abd
Isiah East, Ohio Oil 1, 6 ..... abd
Sugar Creek—Tailor & Ridenour, James M. Jacobs 2 ..... abd

Wells completed 5
Production 140
Abandoned 11

AUGLAIZE COUNTY

Wayne—R. R. Botkins, Arthur & Simpson 1 ..... dry
Washington—H. W. Neemeyer, Brookside Oil & Gas 1 25
Moulton—John Butcher, Stelzer & Boyd 2 2
Pat McLaughlin, Ohio Oil 5 ..... abd
R. B. Culliton, Ohio Oil 2 ..... abd

Wells completed 3
Production 27
Dry 1
Abandoned 2

SANDUSKY COUNTY

Scott—Jacob Bowe, Union Nat. Bank of Fostoria 16 ..... abd
Jackson—Elma J. Smith, Elma J. Smith 1 ..... abd

Abandoned 2

MERCER COUNTY

Gibson—Henry Lechner, J. H. Wilson & Co. 8 10
Recovery—Brunswick, Joe Brunswick & Co. 1 ..... abd

Wells completed 1
Production 10
Abandoned 1

VAN WERT COUNTY

Jennings—Martha Davis, D. S. Bassett 1 ..... abd

SENECA COUNTY

Liberty—Jos. Kimmet, Muncy Valley Oil & Gas 10 125
Dayton Connor, J. H. Whitmore & Co. 8 30
Jos. Swartzmiller, McPherson Oil 5.. 25
Milo Saul, T. F. O'Brien & Co. 1 ..... gas
J. Kunker, Sun Oil & Co. 4 ..... dry
August Fiechtner, Marshall Bros. 1. dry
George Fredericks, W. W. White & Co. 1 ..... dry
T. W. Rinebolt, Kernel Oil 1 ..... dry
F. Bollinger, C. H. Moses & Co. 1 ... dry
Pleasants—S. Smith, Geyer & Shaul 1 .. dry
Jackson—Henry Stahl, Johnson Merriam & Co. 13, 14, 15 ..... abd

Wells completed 10
Production 180
Dry 6
Gas 1
Abandoned 3

HARDIN COUNTY

Jackson—Alonzo T. Price, Leonard Oil & Gas 1 ..... gas

WYANDOT COUNTY

Jackson—C. G. Forney, Hulse & Kundtz 1 ..... dry

CENTRAL OHIO

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	12	28	2	5	10	19	29
Medina	4	0	2	2	4	5	9
Lorain	2	0	0	2	5	5	10
Wayne	8	0	4	4	6	7	13
Holmes	7	77	1	4	3	9	12
Cuyahoga	2	10	0	1	0	5	5
Richland	0	0	0	0	1	2	3
Knox	6	114	1	4	6	6	12
Coshocton	4	138	0	2	3	4	7
Summitt	9	0	1	8	0	11	11
Licking	18	166	5	2	13	15	28
Muskingum	6	65	2	3	11	9	20
Athens	16	10	3	11	14	19	33
Meigs	6	22	1	1	5	16	21
Jackson	4	0	1	3	0	11	20
Vinton	2	4	1	0	0	0	0
Stark	1	0	1	0	1	2	3
Lawrence	0	0	0	0	0	3	3
Gallia	2	0	0	2	0	1	1
Tuscarawas	1	0	1	0	0	1	1
Fairfield	1	0	0	1	0	4	4
Total Oct.	113	634	26	55	91	154	245
Total Sept.	113	407	35	54	75	148	223
Difference	0	227	9	1	16	6	22

WELLS COMPLETED
ASHLAND COUNTY

Hanover—Katherine Cockley, Ohio F. G. 1-3216 ..... dry
Albert Fritz, Ohio F. G. 1-3217..... gas
Orange—Emery Bowman, Logan Gas 1-3017 ..... dry
Mary V. Sherrick Logan Gas 1-3022.. gas
Vermillion—Sylvanus Coble, Ohio Fuel Gas 1-3199 ..... gas
Marion Glass, Kemrow Co. 1..... gas
Luther Jones, W. E. Hawk & Co. 2.. gas
Mohican—J. McFadden, Robison & Hendershot 7 5
Eliza Devault, Curtis & Co. 2..... 5
Eliza Devault, Curtis & Co. 3..... 7
Perry—W. E. Strine, Robison & Co. 5.. 3
Edward Barnhart, Albert Kabe 3.... 8

Wells completed 12
Production 28
Dry 2
Gas 5

MEDINA COUNTY

Montville—H. Emmerson, Ohio Fuel Gas 1-3249 ..... dry
Liverpool—John A. Steck, Logan Gas 2-3-28 ..... dry
Hinckley—Ray M. Hurd, Ohio Fuel Gas 2-3236 ..... gas
Lafayette—J. C. Lincoln, Ohio Fuel Gas 3-3192 ..... gas

Wells completed 4
Dry 2
Gas 2

LORAIN COUNTY

Columbia—Andrew Columbus, Ohio Fuel Gas 1-3230 ..... gas
Carlysle—P. K. Clark, Clyde Daugherty 1 ..... gas

Wells completed 2
Gas 2

WAYNE COUNTY

Congress—G. B. Faber, Ohio Fuel Gas 1-3239 ..... gas
Lillian B. Wood, Ohio Fuel Gas 1-3238 gas
Mary E. Shilling, Ohio Fuel Gas 1-3261 ..... gas
Chester—John I. Gable, Ohio Fuel Gas 1-3278 ..... gas
Robt. Schmidt, Harmon & George 1.. dry
Chippewa—Barbara Stoolmiller, Kemrow Co. 1 ..... dry
Green—Eliza Baab, Logan Gas 1-3030. dry
Wayne—B. E. Boreman, Ohio Fuel Gas 1-1258 ..... dry

Wells completed 8
Dry 4
Gas 4

HOLMES COUNTY

Hardy—L. A. Sowash, East Ohio Gas 6 75
Paint—Daniel Weaver, Ohio Fuel Gas 1-3178 ..... gas
Richland—Harry M. Freck, Kemrow Co. 1 ..... dry
G. O. Leadbetter, East Ohio Gas 1... gas
J. M. Patterson, East Ohio Gas 1.... gas
P. E. Bucy, East Ohio Gas 1..... gas
Knox—Daniel Mosher, Wm. Barker 2.. 2

Wells completed 7
Production 77
Dry 1
Gas 4

CUYAHOGA COUNTY

Olmstead—J. R. Hall, East Ohio Gas 1 gas
Strongville—G. M. & I. Bariswell, McFrederick & Co. 1..... 10

Wells completed 2
Production 10
Gas 1

KNOX COUNTY

Brown—John Kline, Ohio Fuel Gas 3-3214 ..... gas
D. C. Whitney, East Ohio Gas 3..... gas
E. Workman, Upham Gas 1..... gas
Jackson—A. J. Beatty, Logan Gas 1-3015 114
Howard—Emma Durbin, Harry Perkins 2 ..... dry
Jas. A. Greer, Ohio Fuel Gas 1-3213.. gas

Wells completed 6
Production 114
Dry 1
Gas 4

COSHOCTON COUNTY

Monroe—H. R. Brillhart, Preston Oil 1-1224 30
Pike—C. B. Anderson, Pure Oil 2..... 108
Tiverton—Chester Blum, Bell Bros. 1.. gas
Crawford—E. Schlagel, Ohio Fuel Gas 1-3210 ..... gas

Wells completed 4
Production 138
Gas 2

SUMMITT COUNTY

Franklin—J. C. Baum, East Ohio Gas 1 gas
I. H. Spangler, F. A. Brendal & Co. 1 gas
C. L. Wilcox, F. A. Brendal & Co. 1 gas
Thos. Bosh, F. A. Brendal & Co. 1.. dry
Isaac Hose, F. A. Brendal & Co. 2.. gas
Jas. Carmony, Ohio Brass Co. 1..... gas
W. J. Rose, Pittsburgh Plate Glass 1 gas
Richfield—Arthe Dev. Co., East Ohio Gas 1 ..... gas
Copley—Andrew Sayon, Wiser Oil 1.... gas

Wells completed 9
Dry 1
Gas 8

LICKING COUNTY

Fallsburg—Waylan Ashcraft, Preston Oil 2 6
Geo. Chapin, Brown & Co. 8..... 8
Perry—Jas. Wright, Preston Oil 6..... 10
Jas. Wright, Preston Oil 7..... 8
Jos. Chaney, Koontz & Shultz 4..... 75
Albert Ashcraft, Whitehill Gas 2..... 15
Albert Ashcraft, Whitehill Gas 4..... 15
Jacob Lothers, Settles Oil 2..... gas
Chas. Lothas, H. C. Farmer 1..... dry
H. H. Hoover, H. C. Farmer 1..... gas
Mary Ann—C. W. Dwiggins, G. H. Long 7 10
Ed Wright, H. C. Farmer 7..... 12
Granville—Burton Case, H. C. Farmer 4 dry
Hanover—Wm. Shipley, Everette Gas 2 dry
Licking—T. C. Jury, Norpell & Co. 5.. dry
John Dustheimer, Heisey Gas 1..... dry
Madison—Geo. Morrison, Chas. Vaughn 3 4
Bert Hoyt, Hope C. & R. 1..... 3

Wells completed 18
Production 166
Dry 5
Gas 2

MUSKINGUM COUNTY

Jackson—Roy Baughman, Lantz & Meade 3 ..... gas
Roy Baughman, Lantz & Meade 4... dry
Muskingum—L. M. Shaw, Mid-East Oil 2 ..... gas
Hopewell—Allice O. Michael, Heisey Gas 3 65
Clay—Fessie Valentine, Burkhart & Co. 1 ..... dry
Falls—Fred A. Rehl, Wm. Kline & Co. 1 gas

Wells completed 6
Production 65
Dry 2
Gas 3

ATHENS COUNTY

Ames—J. E. Gifford, Ohio Fuel Gas 4-3291 ..... gas
C. D. Jones, Boyd & Kiggins 2..... gas
Linna Dean, Orondorff & Co. 1..... gas
Dover—M. L. Stratton, Structure O. & G. 1 ..... gas
Carthage—C. C. Snodgrass, Logan Gas 1-3004 ..... gas
C. D. Swartz, E. A. Sweeney & Co. 5 gas
Eliza Weisenbach, Logan Gas 1-3021 dry
Cannan—Robt. Bean, Fox & Mosure 3.. gas
Robt. Bean, Fox & Mosure 4..... 6
Berne—P. H. Walker, Ohio Fuel Gas 1-3183 ..... gas
Black Diamond Coal, Ohio Fuel Gas 9-3289 ..... dry
Chas. C. Elliott, Ohio Fuel Gas 4-3298 gas
C. C. Curtis, Smith & Thomas 4..... 4
Lorenzo Lovell, Frank Selby 2.... dry
Athens—C. M. Higgins, Gross & Co. 1. gas
Lodi—Grace A. Day, Stewart & Ross 1 gas

Wells completed 16
Production 10
Dry 3
Gas 11

MEIGS COUNTY

Sutton—Frank E. Holmes, Oscar O'Connell 1 3
L. W. Holter, Tyree & Co. 1..... 1
H. D. Carnahan, Tyree & Co. 4..... dry
Jane Stobart, Tyree & Co. 1..... 10
W. J. Krater, Pure Oil 2..... 1
J. F. Mitchell, Pure Oil 1..... 1
Giles Hysell, Davis Oil 5..... 6
Bedford—Herb Barnhart, Ohio Fuel Gas 1-3241 ..... gas

Wells completed 8
Production 22
Dry 1
Gas 1

JACKSON COUNTY

Franklin—J. E. Hines, Ohio Fuel Gas 1-3206 ..... dry
Ida V. Kimberling, Wittmer O. & G. 2 gas
Lick—Jas. L. Davis, Ohio Fuel Gas 2-3221 ..... gas
Coal—Geo. N. House, Ohio Fuel Gas 1-3128 ..... gas

Wells completed 4
Dry 1
Gas 2

VINTON COUNTY

Knox—Wm. Beckley, Co-operative Oil 6 4
Brown—Lewis P. Dryer, Atha Drlg. 1. dry

Wells completed 2
Production 4
Dry 1

STARK COUNTY

Lawrence—Geo. Seifert, Cashdollar & Co. 1 ..... dry

GALLIA COUNTY

Addison—H. F. Smith, Ohio Fuel Gas 1-3231 ..... gas
Alex Lane, Atha Drlg. Co. 1..... gas

Wells completed 2
Gas 2

TUSCARAWAS COUNTY

Clay—A. A. Wohlwend, H. R. P. Miller, 1 ..... dry

FAIRFIELD COUNTY

Rush Creek—Hal Thomas, Myers & Sturm 1 ..... gas

INDIANA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wells	0	0	0	0	0	1	1
Jay	1	0	1	0	0	1	1
Adams	1	5	0	0	0	1	1
Grant	0	0	0	0	0	1	1
Huntington	0	0	0	0	0	1	1
Gibson	3	10	1	1	1	7	8
Pike	0	0	0	0	1	4	5
Daviess	0	0	0	0	0	2	2
Vigo	3	70	1	0	0	4	4
Sullivan	0	0	0	0	0	7	7
Dubois	0	0	0	0	0	2	2
Warrick	1	0	0	1	0	2	2
Spencer	2	10	1	0	1	6	7
Knox	0	0	0	0	0	1	1
Benton	0	0	0	0	0	1	1
Fountain	0	0	0	0	0	1	1
Monroe	0	0	0	0	0	1	1
Batholomew	0	0	0	0	0	1	1
Miami	0	0	0	0	0	1	1
Montgomery	0	0	0	0	0	1	1
Wabash	0	0	0	0	0	1	1
Greene	0	0	0	0	0	1	1
Henry	0	0	0	0	0	1	1
Allen	1	0	1	0	0	0	0
Madison	0	0	0	0	0	2	2
Hancock	0	0	0	0	0	1	1
Crawford	0	0	0	0	0	2	2
Perry	0	0	0	0	1	1	2
Marshall	1	0	1	0	0	0	0
Posey	0	0	0	0	0	1	1
Rush	3	0	0	3	0	0	0
Vandeburg	0	0	0	0	0	2	2
Steuben	0	0	0	0	0	1	1
Pulaski	0	0	0	0	0	1	1
Harrison	1	0	0	1	0	2	2
Lagrange	0	0	0	0	0	0	0
Total Oct.	17	95	6	6	4	6	10
Total Sept.	26	272	11	8	2	7	9
Difference	9	177	5	2	2	1	1

WELLS COMPLETED
JAY COUNTY

Penn—N. E. Portland, Rice & Milligan 1

ADAMS COUNTY

Blue Creek—S. C. Tinkham, George Lacknett 1 .....

RANDOLPH COUNTY

Monroe—W. H. Baker, T. O. Thorp 1, 2
Christ Baughn, T. O. Thorp 1 .....
J. Meeks, C. F. Chapman 1, 2 .....

Abandoned .....

GIBSON COUNTY

Washington—Chas. White, Big Four Oil & Gas 1 .....
L. Dillon, William Bell & Co. 1 .....
Columbia—Ranford Corn, Roxana Pet. 1

Wells completed .....
Production .....
Dry .....
Gas .....

WARRICK COUNTY

Anderson—J. Lang, Finke & Ziegler 1..

SPENCER COUNTY

Clay—Forest Bell, Universal Oil 1 .....
J. G. Haines, George F. Elliott & Co. 1

Wells completed .....
Production .....
Dry .....

ALLEN COUNTY

Monroe—Near State Line, unknown 1 ..

MARSHALL COUNTY

Plymouth—Frank Lawson, Arco Oil & Gas 1 .....

RUSH COUNTY

Rushville—Joseph Cowing, Rushville Gas Co. 1, 2, 3 .....

Wells completed .....
Gas .....

HARRISON COUNTY

Tobacco Landing—Alonzo Brown, Laconia Fuel & By-Products 1 .....

ILLINOIS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.
Clark	0	0	0	0	0	1
Cumberland	0	0	0	0	0	1
Crawford	13	134	4	3	2	1
Lawrence	1	25	0	0	0	3
Wabash	6	175	4	0	0	3
Jefferson	1	0	1	0	0	0
St. Clair	1	0	1	0	0	0
Macon	0	0	0	0	0	1
Madison	0	0	0	0	0	1
Shelby	0	0	0	0	0	1
Marion	0	0	0	0	0	1
Total Oct.	22	334	10	3	2	10
Total Sept.	17	428	6	0	3	10
Difference	5	94	4	3	1	1

WELLS COMPLETED
CRAWFORD COUNTY

Prairie—J. R. Evans, J. F. Bolinger 1 ..
Sarah Randolph, One-Sixth Oil 1 ...
Honey Creek—Ewing heirs, Phipps, Cowood & Co. 12 .....
M. O. Southers, Ed Kerlin 1 .....
Southwest—Lloyd Mann, Silurian Oil 1
J. D. and F. L. Price, Dark Bend Oil
Robinson—S. D. Meserve heirs, Associated Producers 52 .....
Oris Musgrove, Karns, Scheeongas & Co. 2 .....
Martin—Lloyd Mann, Silurian Oil 2 ..
J. H. Parker, Toomey & McGuigan
Oblong—O. B. Kirtland, Dinsmoor Oil
W. D. Best, Dinsmoor Oil 1 .....
Licking—Millard Payne, M. E. Harris Co. 1 .....

Wells completed .....
Production .....
Dry .....
Gas .....

LAWRENCE COUNTY

Petty—Warren Westall, Ohio Oil 11 ..

WABASH COUNTY

Wabash—George Green, Highland Oil Gas 1 .....
John Keyser, Joe S. Young Jr. & Co.
L. G. Stillwell, Joe S. Young Jr. & C.
Clara Armstrong, Phillips, Blosser Co. 1 .....
F. M. Ramsey, Smith & Co. 1 .....
W. M. Price, Geo. Miller & Co. 3 ....

Wells completed .....
Production .....
Dry .....

JEFFERSON COUNTY

Spring Grove—F. W. Knowles, Ed List 1 .....

ST. CLAIR COUNTY

Sugar Loaf—Joseph Reichert, Ohio Oil

MICHIGAN FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.
Muskegon	20	2,765	3	9	22	4
Midland	0	0	0	0	0	1
Gratiot	0	0	0	0	0	1
Monroe	0	0	0	0	0	0
Shawasse	0	0	0	0	0	0
Crawford	0	0	0	0	0	0
Montcalm	0	0	0	0	0	1
Sanilac	0	0	0	0	0	0
Isabella	0	0	0	0	0	0
Newyago	0	0	0	0	0	3
St. Clair	0	0	0	0	0	0
Oakland	0	0	0	0	0	1
Van Buren	0	0	0	0	0	2
Alpena	0	0	0	0	0	0
Livingstone	0	0	0	0	0	0
Lapeer	0	0	0	0	0	1
Allegan	0	0	0	0	0	1
Tuscola	0	0	0	0	0	0
Mason	0	0	0	0	0	0
Huron	0	0	0	0	0	0
Manistee	0	0	0	0	0	1
Cass	0	0	0	0	0	0
Kent	0	0	0	0	0	1

Ottawa	0	0	0	0	0	2	2
Oceana	0	0	0	0	1	0	1
Total Oct.	20	2,765	3	9	35	68	103
Total Sept.	14	210	2	7	21	58	79
Difference	6	2,555	1	2	14	10	24

WELLS COMPLETED MUSKEGON COUNTY

Muskegon—Jacob Host, Consolidated Oil 1	gas
Nichols, Joliet-Morris Development 3	gas
John Ehlers, Joliet-Morris Development 3	gas
County Sanitorium, Balch & Balch 1	gas
Myler, Muskegon Development 1	gas
Gebott, Inland Oil 1	gas
Burns, Kelley Goldboss 2	gas
Taggart, A. S. Cochran 1	gas
Max Mahoney, Ma-Ha-Goo Oil 1	gas
Fee, Continental Motors Corp. 2, 3	dry
Louis Zuidema, Muskegon Development 1	1200
M. Figge, Lima Oil Corp. 3	850
Drost, Meeske Development 1	500
Overkamp, Puritan Oil 1	50
Dikes, Dixie Oil 1	30
A. Heinz, Reed Oil 2	30
Torrent, Reed Oil 2	dry
Frank Cihak, Dundee Oil & Gas 1	75
L. Heinz, Johnson Oil & Refining 2	30
Wells completed	20
Production	2765
Dry	3
Gas	9

KENTUCKY-TENNESSEE

(Continued from Page 123)

tracted drillings, so each would participate in any oil that might be developed. The first well has been drilled into the sand and is a fairly good gasser, but it is yet undecided whether it will be drilled to a greater depth or shut in for a gas producer, although there is a showing of oil in the Barlow at 554 feet. The test was strictly wildcat. In this large block of acreage all the royalty interests have been purchased by the Hancock Land & Improvement Co., which will receive the one-eighth interest of the land owners for its stockholders.

Tennessee

Tennessee is again in the limelight with its usual good producers, there being three of them, the largest Ackerman and the I-Ten Oil Co., of Indianapolis, Ind., No. 1 on the G. L. Maynord farm, on Mitchell Creek, in Clay County, which is pumping 10 bbls. per hour into storage from the Sunnybrook sand. No. 2 is now starting up.

On the same stream, the Ava Oil & Gas Co.'s big well, drilled some time ago on the A. T. Davis farm, is still producing all the pump will handle on the jack and has never pumped off. This company has locations staked for four new wells and will start drilling in the near future.

Graff and others of Pittsburgh, Pa., are down around 500 feet in No. 1 on the Meadows and Maynord farm, also on Mitchell Creek. Tim Williams and others are starting their No. 1 on the 1,000-acre farm of G. L. Maynord on Mitchell Creek. This well should develop a large producer as it is near the big well on the T. V. Davis farm, and on the same structure.

The Celina Oil & Gas Co. completed its fifteenth straight producer in the Long Branch Pool, which showed an initial natural flow of 100 bbls. This company has under construction a pipe line outlet for this pool and is laying its own line to Carthage, Tenn., a distance of about 31 miles. It is putting $50,000 in this line which traverses a territory that is good looking for oil production.

Clark-Hill Oil Corp. has just completed a nice well in Petermans Bend at Celina, in Clay County, it being No. 3 on the J. M. Gray farm in the regular pay sand of the field at 187 feet below the Pencil Cave. It showed an initial of 50 bbls. Same company is starting No. 1 on the J. H. Donalson farm in the Petermans Bend Pool, and it will require about three weeks to strike the pay sand.

H. Z. Clark, the discoverer of the Clark-Hill Pool in Clay County, Tennessee, is spending about half his time in Henderson County, Kentucky, where he has interests in drilling wells and acreage.

MORE OIL IN 12 POOLS THAN FOREIGN FIELDS

(Continued from Page 80)

ceeded by the combined production last year of an even dozen pools in the United States, namely, Seminole City, Okla., 47,039,644 bbls.; Earlsboro, Okla., 36,885,196 bbls.; Bowlegs, Okla., 36,649,733 bbls.; Seal Beach, Calif., 16,424,929 bbls.; Upton-Crane, Tex., 29,583,131 bbls.; Smackover, Ark., 35,507,476 bbls.; Long Beach, Calif., 34,541,667 bbls.; Midway-Sunset, Calif., 31,670,708 bbls.; Borger, Tex., 32,240,493 bbls.; Huntington Beach, Calif., 26,344,697 bbls.; Spindletop, Tex., 21,264,935 bbls., and Ventura Avenue, Calif., 17,808,704 bbls., which together produced 365,961,000 bbls. or 29 per cent of the world's crude last year.

WORLD'S CRUDE OIL PRODUCTION IN 1927

Comparing Production of American States With That of Foreign Countries

(Figures of the U. S. Bureau of Mines.)

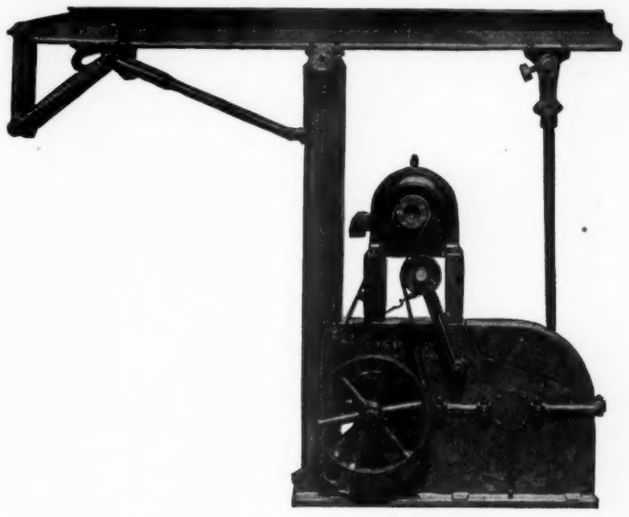
	Bbls.
Oklahoma	277,775,000
California	231,196,000
Texas	217,389,000
Russia	77,018,000
Mexico	64,121,000
Venezuela	63,134,000
Kansas	41,069,000
Arkansas	40,005,000
Persia	39,688,000
Rumania	26,368,000
Dutch East Indies	25,967,000
Louisiana	22,818,000
Wyoming	21,307,000
Colombia	15,002,000
Peru	10,135,000
Pennsylvania	9,526,000
Argentina	8,630,000
British India	7,878,000
Ohio	7,593,000
Illinois	6,994,000
Kentucky	6,719,000
West Virginia	6,023,000
Trinidad	5,712,000
Poland	5,342,000
Montana	5,058,000
British Borneo-Sarawak	4,943,000
Colorado	2,831,000
New York	2,242,000
Japan and Taiwan	1,700,000
Egypt	1,267,000
New Mexico	1,226,000
Indiana	852,000
Germany	663,000
Ecuador	537,000
France	504,000
Canada	477,000
Sakhalin, Russia	440,000
Michigan	439,000
Czechoslovokia	149,000
Tennessee	60,000
Italy	54,000
Algeria	8,000
Cuba	3,000
England	2,000
All other fields	219,000
Total	1,261,083,000

WORLD'S PRODUCTION OF PETROLEUM IN 1927, BY COUNTRIES, COMPARED WITH 1926

(Compiled by L. M. Jones, of the Bureau of Mines)

	1927		1926	
	Bbls. of 42 U.S. gallons	Percentage of total by vol.	Bbls. of 42 U.S. gallons	Percentage of total by volume
United States	901,129,000	71.5	770,874,000	70.3
Russia*	77,018,000	6.1	64,311,000	5.9
Mexico	64,121,000	5.1	90,421,000	8.2
Venezuela	63,134,000	5.0	36,911,000	3.4
Persia	39,688,000	3.1	35,842,000	3.3
Rumania	26,368,000	2.1	23,314,000	2.1
Netherland East Indies	25,967,000	2.1	21,243,000	1.9
Colombia	15,002,000	1.2	6,444,000	.6
Peru	10,135,000	.8	10,519,000	1.0
Argentina	8,630,000	.7	7,851,000	.7
India, British	7,878,000	.6	8,011,000	.7
Trinidad	5,712,000	.5	5,278,000	.5
Poland	5,342,000	.4	5,844,000	.5
British Borneo—Sarawak	4,943,000	.4	4,942,000	.4
Japan and Taiwan	1,700,000	.1	1,785,000	.2
Egypt	1,267,000	.1	1,188,000	.1
Germany	663,000		653,000	
Ecuador	537,000		214,000	
France	504,000		478,000	
Canada	477,000		364,000	
Sakhalin, Russian	440,000		181,000	
Czechoslovakia	149,000	.2	150,000	.2
Italy	54,000		48,000	
Algeria	8,000		9,000	
Cuba	3,000		2,000	
England	2,000		2,000	
Other countries†	‡212,000		15,000	
Total	1,261,083,000	100.0	1,096,894,000	100.0

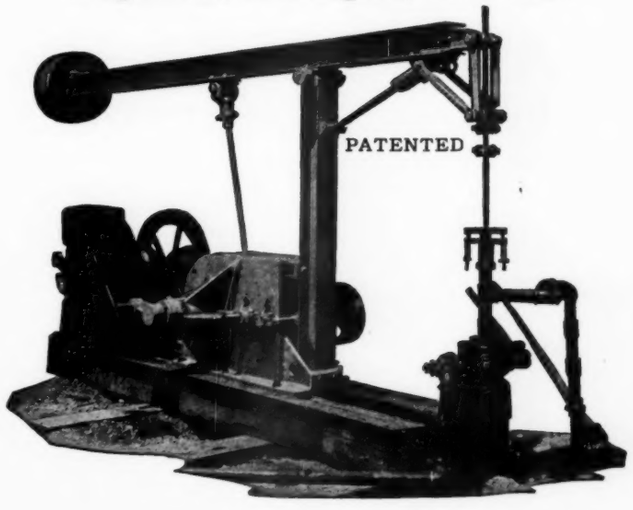
*Exclusive of Sakhalin, which is shown separately. †Estimated. ‡Includes estimated production in the Baba-Gurgur Field, Iraq.



Mechanically Correct Oil Well Pumping Powers

Fabricated with "H" Beam for Sampson Post and Walking Beam.
Toggle made from steel casting.
Interchangeable bronze bearings throughout.
Cut gears running in oil.
Patented cam motion keeps polish rod in alignment at all times.
Can be used to pump from one to three wells.

Stork Engineering Company
Saginaw, Michigan, U. S. A.



Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for September

Runs

Company—	Month bbls.	Dly. av. bbls.
Prairie P. L. Co.*	4,425,000	147,500
Gulf P. L. Co.	1,543,157	51,439
Texas P. L. Co.	825,412	27,514
Magnolia P. L. Co.	2,021,613	67,387
Empire P. L. Co.	1,051,830	35,061
Cosden P. L. Co.	938,043	31,268
Sinclair P. L. Co.	3,546,000	118,200
Oklahoma P. L. Co.	3,627,300	120,910
Other lines	7,539,000	251,000
Total September	25,508,355	850,279
Total August	23,339,806	752,887
Difference	2,168,549	97,392

Shipments

Prairie P. L. Co.†	5,794,603	193,153
Gulf P. L. Co.	1,599,359	53,312
Texas P. L. Co.	1,058,929	35,298
Magnolia Pet. Co.	1,992,678	66,422
Empire P. L. Co.	1,056,498	35,217
Cosden P. L. Co.	730,643	24,355
Sinclair P. L. Co.†	3,414,431	113,814
Oklahoma P. L. Co.	3,433,505	114,450
Other lines	6,180,000	206,000
Total September	25,260,656	842,021
Total August	24,872,351	802,333

Stocks

Prairie O. & G. Co.	31,550,000
Prairie P. L. Co.	2,250,000
Gulf P. L. and Gypsy Oil Cos.	10,129,332
The Texas Company	6,778,513
Magnolia Pet. Co.	8,805,178
Empire P. L. Co.	3,649,650
Mid-Continent Pet. Corp.	3,552,713
Sinclair Crude Oil Pur. Co.	20,000,000
Carter Oil Co.	12,091,810
Oklahoma P. L. Co.	3,985,616
Other lines	11,500,000
Total September	113,392,812
Total August	112,768,329
Difference	624,483

*Estimated. †Prairie P. L. shipments include Texas crude oil and Sinclair shipments include Texas and Wyoming crude oil.

NOTE—Stocks do not include approximately 8,200,000 bbls. of crude oil held in storage on private tank farms and leases and approximately 250,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma.

EASTERN PIPE LINE REPORT

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September:

	Aug., '28	Sept., '28
National Transit	170,904.52	157,168.79
S. W. Pa. P. L.	91,112.38	81,070.62
Eureka P. L.	381,023.25	345,505.60
Buckeye P. L. (Macksburg)	367,692.66	321,117.10
Buckeye P. L. (Cleve)	11,928.55	11,281.62
Buckeye P. L. (Lima, etc.)	120,600.29	108,830.90
Indiana P. L.	7,013.10	6,387.52
Cumberland P. L.	223,338.19	193,343.46
N. Y. Transit	25,007.11	23,100.70
Tidewater P. L.	220,230.22	204,507.93
Pure Oil	65,261.50	59,111.90
Emery P. L.	61,506.60	57,782.02
Paragon Dev.	34,022.80	26,168.86
Stoll Oil. Ref.	10,447.17	9,243.26
Total	1,790,088.34	1,604,620.28
Daily average	57,744.78	53,487.34

Note—Indian Refining Co. also reported other receipts of 357,570.08 bbls. Paragon Refining Co. had other receipts of 183,883,-44 bbls. Paragon Development had other receipts of 719.21 bbls.

Petroleum Deliveries

The following tables exhibit the shipments of regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky at the close of August and September:

	Aug., '28	Sept., '28
National Transit	572,070.14	532,771.70
S. W. P. P. L.	462,872.37	481,986.45
Eureka P. L.	224,817.97	213,103.59
Buckeye P. L. (Macksburg)	148,487.46	142,859.81
Buckeye P. L. (Cleve)	2,673.05	1,697.10
Buckeye P. L. (Lima, etc.)	1,512,473.28	1,399,448.58
Indiana P. L.	1,426,376.89	1,379,998.87
Cumberland P. L.	181,480.36	297,672.13
N. Y. Transit	213,009.28	240,697.91
Northern P. L.	316,097.83	301,912.35
Tidewater P. L.	177,158.38	124,606.05
Pure Oil	62,891.44	62,090.54
Emery P. L.	56,960.09	61,266.58
Paragon Ref.	189,693.84	190,716.50
Indian Ref.	393,569.13	366,303.28
Paragon Dev.	37,817.61	27,004.95
Total	5,978,449.12	5,824,136.38
Daily average	192,853.19	194,137.88

Gross Stocks

The gross stocks held by various pipe lines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana for August and September:

	Aug., '28	Sept., '28
National Transit	1,135,875.48	1,034,508.62
S. W. Pa. P. L.	713,493.58	607,019.77
Eureka P. L.	1,102,757.62	1,144,172.16
Buckeye P. L. (Macksburg)	540,894.00	507,516.69
Buckeye P. L. (Cleve)	46,048.37	42,976.72
Buckeye P. L. (Lima, etc.)	3,717,960.51	3,600,695.49
Indiana P. L.	598,136.05	602,500.63
Cumberland P. L.	632,613.31	511,311.43
Southern P. L.	410,757.10	414,022.54
N. Y. Transit	706,799.19	612,289.36
Northern P. L.	456,296.62	424,456.32
Pure Oil	63,850.93	64,141.86
Emery P. L.	8,656.13	9,373.75
Paragon Ref.	23,167.67	16,042.95
Indian Ref.	69,892.18	61,936.95
Paragon Dev.	7,544.29	7,944.96
Total	10,236,743.03	9,660,910.34
Decrease	582,587.91	575,832.69

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of August and September showing the gross stocks of the above fields:

	Aug., '28	Sept., '28
Pennsylvania	3,368,647.01	3,227,574.95
Lima	965,466.57	969,628.64
Kentucky	993,362.71	831,752.66
Mid-Continent	4,857,572.08	4,560,201.79
Illinois	51,694.66	71,752.30
Total	10,236,743.03	9,660,910.34

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1925	1926	1927	1928
Jan.	56,831	55,630	56,209	52,904
Feb.	60,606	60,394	61,298	57,002
Mar.	60,575	61,644	63,247	57,485
April	63,062	63,019	60,337	56,812
May	59,217	60,580	60,284	62,067
June	61,270	61,131	62,757	58,220
July	62,639	63,206	58,674	57,144
Aug.	59,686	61,815	60,870	57,745
Sept.	62,510	64,639	60,285	53,487
Oct	145,388	161,132	147,036	.....
Nov.	59,350	61,774	57,275	.....
Dec.	57,974	58,755	53,089	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1925	1926	1927	1928
Jan.	157,889	156,056	141,227	146,465
Feb.	160,863	159,488	138,534	167,368
Mar.	154,591	150,239	133,777	169,883
April	151,429	152,371	140,227	172,925
May	146,995	160,998	144,594	180,659
June	149,467	160,257	149,772	188,034
July	161,338	160,045	151,850	189,470
Aug.	161,730	151,929	188,653	192,853
Sept.	156,719	158,915	144,218	194,138
Oct.	145,388	161,132	147,036	.....
Nov.	143,582	152,608	150,975	.....
Dec.	150,162	136,428	144,504	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1926	1927	1928
Jan.	9,859,170	9,718,008	12,276,710
Feb.	9,579,354	10,119,162	12,180,419
Mar.	9,438,292	10,794,044	12,229,725
April	9,805,851	11,112,295	11,740,125
May	9,531,767	11,359,381	11,602,468
June	9,585,904	11,493,673	11,287,678
July	9,734,687	11,458,128	10,819,321
Aug.	9,058,947	11,989,115	10,236,743
Sept.	9,436,732	12,212,716	9,660,910
Oct.	9,269,806	12,047,661	.....
Nov.	9,257,067	11,939,740	.....
Dec.	9,454,512	12,340,297	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Runs	Shipments	Stocks
1927			
Sept.	3,309.56	2,656.48	19,372.25
Oct.	2,801.32	1,226.99	20,946.58
Nov.	2,746.50	2,220.53	21,472.55
Dec.	2,779.86	1,893.69	22,358.72
1928—			
Jan.	1,886.06	2,424.79	21,819.99
Feb.	2,460.14	3,109.34	21,170.79
March	2,578.86	3,540.33	20,209.32
June	3,153.08	2,779.02	17,922.58
July	2,902.50	3,628.02	17,197.06
Aug.	2,874.11	2,350.13	17,721.04
Sept.	2,820.31	6,255.42	15,285.93

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Oct. 1	2,985,377.67
Runs from wells	545,420.55
Other receipts	405,258.98
Regular deliveries	654,033.74
Other deliveries	383,379.16

The amount of Illinois oil run by the Tidewater Pipe Co. in September was 24,-887.36 bbls. Deliveries were 83,259.76 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

	Runs	Deliveries
1927—		
September	619,580.49	433,212.49
October	601,099.25	408,287.58
November	605,621.14	415,185.06
December	577,321.25	397,176.07
1928—		
January	561,759.57	434,147.02
February	573,619.78	450,217.31
March	725,250.82	520,595.69
April	526,013.13	448,282.44
May	632,968.64	522,980.51
June	608,552.49	625,087.33
July	612,286.49	565,678.37
August	639,074.85	671,864.02
September	570,307.91	737,293.50

Tidewater Pipe Co., Ltd., also delivered in September, 261,905.21 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans / Baton Rouge	Port Arthur / Sabine Pass	Tampa	Total	Total all ports
April	9,033	9,167	24,133	18,167	7,867	66,367	.....	.....	.....	.....	.....	66,367
May	19,355	5,387	19,581	16,419	4,774	65,516	.....	.....	.....	.....	.....	65,516
June	11,800	.....	23,367	19,700	9,000	63,867	.....	.....	.....	.....	.....	63,867
July	19,807	2,903	8,774	20,419	2,452	54,355	.....	.....	.....	.....	.....	54,355
August	18,161	3,613	27,774	17,677	2,419	69,645	.....	.....	.....	.....	806	70,451
September	11,100	.....	18,967	38,200	6,700	74,967	.....	.....	.....	.....	.....	74,967

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	Atlantic Ports: Baltimore	Boston	New York	Philadelphia	Others	Total	Gulf Coast Ports: Galveston	New Orleans / Baton Rouge	Port Arthur / Sabine Pass	Tampa	Total	Total all ports
April	18,267	5,800	124,133	33,200	36,067	217,467	9,333	23,467	2,167	133	35,100	252,567
May	28,000	7,033	107,484	32,129	21,936	196,581	3,871	24,032	.....	1,904	29,807	226,388
June	24,900	12,233	119,867	41,667	19,300	217,967	1,833	16,567	2,167	.....	19,567	237,534
July	23,484	14,548	111,903	37,678	21,452	209,065	9,355	25,000	.....	774	35,129	244,194
August	25,290	16,323	123,226	21,613	7,194	193,646	.....	38,677	.....	613	39,290	232,935
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	6,333	1,667	55,667	253,200

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
October:	Month	19,448,893	24,247,053	19,200,098	3,509,169	3,117,298	2,058,889	2,258,885	3,400,000	77,240,285
	Daily average	627,384	782,163	619,358	113,199	100,555	66,416	72,867	109,677	2,491,623
November:	Month	18,516,467	23,083,380	18,628,290	3,313,650	2,906,760	1,956,960	2,234,730	3,302,500	73,943,737
	Daily average	617,216	769,446	620,943	110,455	98,892	65,232	74,491	110,083	2,464,758
December:	Month	18,938,823	23,208,417	19,840,009	3,427,174	2,962,750	1,927,148	2,400,578	3,219,900	74,924,799
	Daily average	610,930	716,400	640,000	110,554	95,576	62,166	77,438	103,868	2,416,926
January:	Month	19,028,228	20,978,320	20,024,981	3,319,325	2,791,922	1,805,015	2,429,375	3,133,000	73,510,166
	Daily average	613,814	676,720	645,967	107,075	90,061	58,226	78,367	101,064	2,371,296
February:	Month	18,038,458	19,394,426	19,645,488	3,079,887	2,671,575	1,759,606	2,230,887	3,166,000	69,786,328
	Daily average	622,016	668,324	677,431	106,203	88,678	60,676	76,927	109,172	2,406,425
March:	Month	19,118,320	20,162,524	21,466,632	3,379,021	2,687,948	1,871,158	2,401,911	3,522,000	74,609,524
	Daily average	616,720	650,404	692,472	109,001	86,708	60,360	77,481	113,613	2,406,759
April:	Month	18,280,729	19,096,920	21,845,428	3,412,260	2,472,600	1,915,020	2,370,810	3,231,000	72,624,767
	Daily average	609,357	636,564	728,180	113,742	82,420	63,835	79,027	107,700	2,420,826
May:	Month	19,331,866	19,443,355	21,191,561	3,367,809	2,843,847	1,926,036	2,525,043	3,619,000	74,248,517
	Daily average	623,609	627,205	683,599	108,639	91,737	62,130	81,455	116,742	2,395,118
June:	Month	19,164,244	18,482,981	19,802,520	3,202,050	3,075,911	2,112,149	2,425,470	3,394,000	71,659,325
	Daily average	638,808	616,099	660,084	106,735	102,530	70,405	80,849	113,133	2,388,644
July:	Month	19,754,458	18,809,498	22,155,335	3,171,548	3,792,139	2,237,738	2,492,586	3,472,000	74,885,303
	Daily average	637,241	606,758	714,688	102,308	90,069	72,185	80,406	112,000	2,415,655
August:	Month	19,444,849	20,840,494	22,201,257	3,147,058	3,711,787	2,221,677	2,561,840	3,571,200	76,700,213
	Daily average	627,255	672,274	716,170	101,518	87,477	71,667	82,640	115,200	2,474,200
September:	Month	18,908,169	22,456,860	21,564,360	3,047,250	3,540,070	1,829,625	2,432,430	3,420,000	76,188,664
	Daily average	630,272	748,562	718,475	101,575	84,669	60,987	81,081	114,000	2,539,621
	Total 12 months	227,973,555	249,104,228	247,555,859	39,376,211	32,474,607	23,621,023	28,764,545	40,450,600	890,320,628
	Daily average	622,878	680,613	676,382	107,585	91,461	64,538	78,592	110,521	2,432,570

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